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Economic Backbone of the *Penn Central* Test After *Florida Rock V*, *K&K,* and *Palazzolo*

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Introduction: Too Little Attention to Economic Underpinnings of *Penn Central* Test

The U.S. Supreme Court remanded *Palazzolo v. Rhode Island*[1] to the Rhode Island Supreme Court to examine the plaintiff's takings claim under the *Penn Central Transportation Co. v. City of New York*[2] test. Arguably, this decision transferred to Rhode Island a question upon which certiorari was granted, but never dealt with: "Whether the remaining permissible uses of regulated property are economically viable merely because the property retains a value greater than zero."[3] This question is more a matter of economics than law. Courts have dedicated too little attention to the economic underpinnings of this question.

Like *Palazzolo*, the Michigan Supreme Court remanded *K&K Construction, Inc. v. Department of Natural Resources*[4] to the trial court to determine: (1) which parcels of the entire property should be included in the denominator parcel; and (2) applying the balancing analysis of the *Penn Central* test, should compensation be paid for a taking. The *K&K* trial court ultimately found in favor of the plaintiffs. The case provides a good illustration of how economic calculations fit into the *Penn Central* test.

Under *Penn Central*, "several factors have particular significance" to the decision to pay compensation:

> The economic impact of the regulation on the claimant; the extent to which the regulation has interfered with distinct investment-backed expectations; and the character of the government regulation.[5]

Among these factors, legal scholarship[6] since the *Palazzolo* decision focuses on "investment-backed expectations," whether conjoined with "distinct" or "reasonable,"[7] as the governing factor. Legal scholars point to the courts' confounding of reasonable expectations vis-à-vis plaintiffs' notice of regulatory prohibitions versus expected return on investments. Two writers conclude that "the role of expectations in the takings calculus must undergo a thorough reassessment."[8] Prof. Steven J. Eagle concludes that the "notice rule" must be cleaved from the "reasonable investment-backed expectations" doctrine.[9] Even Prof. John D. Echeverria wonders (obfuscating the reasonable notice and reasonable returns constructs) when "an owner's lack of investment-backed expectations [would] defeat a takings claim."[10]

In *Palazzolo*, the Supreme Court ruled that simply changing the form of legal title of Mr. Palazzolo's investments did not invoke a positive notice of prohibitive regulations that could have governed or defeated his expectations formed in 1959 and 1960. That case now awaits Justice Sandra Day O'Connor's direction to the lower court of a "careful examination and weighing of all the relevant circumstances"[11] that would govern the decision to pay compensation for over 40 years of regulatory delay.

Tahoe-Sierra Preservation Council, Inc., v. Tahoe Regional Planning Agency,[12] another recent Supreme Court case, reveals the Court's struggle with clear benchmarks to

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1. 533 U.S. 606, 32 ELR 20516 (2001).
2. 438 U.S. 104, 8 ELR 20528 (1978).
3. Palazzolo v. Rhode Island, 121 S. Ct. 296 (2000) (granting certiorari).
4. 575 N.W.2d 531, 28 ELR 21156 (Mich. 1998), *remanded sub nom.* K&K Constr., Inc. v. Michigan Dep't of Envtl. Quality, No. 88-012120-CM (Mich. Ct. Cl. May 28, 2002).
5. *Penn Central*, 438 U.S. at 124, 8 ELR at 20533.
6. *See* Joel R. Burcat & Julia M. Glencer, Palazzolo v. Rhode Island *and the U.S. Supreme Court's Increased Support of the Constitutional Protection of Private Property: A Response to Echeverria*, 32 ELR 10245 (Feb. 2002); Steven J. Eagle, Palazzolo v. Rhode Island: *A Few Clear Answers and Many New Questions*, 32 ELR 10127 (Jan. 2002); John D. Echeverria, *A Preliminary Assessment of* Palazzolo v. Rhode Island, 31 ELR 11112 (Sept. 2001); R.S. Radford & J. David Breemer, *Great Expectations: Will* Palazzolo v. Rhode Island *Clarify the Murky Doctrine of Investment-Backed Expectations in Regulatory Takings Law?*, 9 N.Y.U. ENVTL. L.J. 449 (2001).
7. Prof. Steven J. Eagle points out that "a year after *Penn Central* was decided, Justice [William H.] Rehnquist restated [the Court's three-prong test using the term 'reasonable investment-backed expectations' in *Kaiser Aetna v. United States*, 444 U.S. 164, 175 (1979)]. This set the stage for the fundamental reassessments of investment-backed expectations following . . . *Lucas*." Steven J. Eagle, *The Rise and Rise of "Investment-Backed Expectations*, 32 URB. LAW. 437, 442 (2000). *See also* Steven J. Eagle, *The Regulatory Takings Notice Rule*, 24 U. HAW. L. REV. 533 (2002).
8. Radford & Breemer, *supra* note 6, at 531.
9. Eagle, *The Rise and Rise*, *supra* note 7, at 446.
10. Echeverria, *supra* note 6, at 11121.
11. *Palazzolo*, 533 U.S. at 636, 32 ELR at 20521 (O'Connor, J., concurring).
12. 122 S. Ct. 1465, 32 ELR 20627 (2002).

know when and how much compensation should be paid for regulatory interference with uses of private property.

> When the government condemns or physically appropriates the property, the fact of a taking is typically obvious and undisputed. When, however, the owner contends a taking has occurred because a law or regulation imposes restrictions so severe that they are tantamount to a condemnation or appropriation, the predicate of a taking is not self-evident, and the analysis is more complex.[13]

The predicate for the typical takings lawsuit is obvious to the property owner: her money invested in real property sits useless because some law or regulation has arisen to prohibit the use of the property as planned, or at all. Defense lawyers have found a variety of concerns to obfuscate the threshold of interference. While *Penn Central*'s particularly significant factors guarantee that courts must carefully weigh and balance the relevant circumstances, courts will benefit from more expert understanding of when financial expectations are dashed and plaintiffs are unduly harmed. This Dialogue seeks to clarify the economic predicates for a taking embedded within investment-backed expectations,[14] leaving the notice issues to legal scholars.[15]

The Dialogue first reviews the *K&K* case history and then defines language used loosely in numerous takings cases. Next, it explains the analytic underpinnings for the takings fraction and reviews the balancing test used in takings jurisprudence. The Dialogue then examines considerations for excluding part of a parcel from the whole in takings analysis. It goes on to show that damages set at a benchmark date in the past must be compounded forward at the plaintiff's opportunity cost of capital. Otherwise, inefficiencies will prevail in our system of law and regulation.

K&K Construction, Inc. v. Department of Natural Resources

This takings case arose in 1988 after the Michigan Department of Natural Resources (DNR) denied landowners' application for a permit to fill wetlands in order to develop a restaurant and sports complex on their property. The landowners began acquiring the property in Waterford Township, Michigan, in 1976. The property consists of four parcels, comprising 82 acres.

Parcel 1, the principal and largest parcel, consists of 54.38 acres zoned for commercial use, 27 acres of which were later deemed wetlands. Parcel 1 encompasses three economic and potential economic assets: (1) an existing restaurant built and owned by third parties on 2 acres of land sold by the landowners in 1987 for $225,000; (2) a 10,000 square feet, one-story office building built and equipped between 1988-1991 at a cost of $790,200 owned by the landowners and located on 2 acres of land; and (3) the proposed restaurant (C.J. Barrymore) and sports complex. The trial court tallied the investment in Parcel 1 at $2.455 million over the 12-year period between 1976-1988, net of the sales price, $225,000, for the sale of the land for the existing restaurant in 1987.

Parcel 2 consists of 13.2 acres of land that adjoin the south border of Parcel 1. It was zoned for mixed use (residential and agriculture) in 1988, later rezoned to multifamily residential in 1990, and sold December 13, 1995, to a third party for $565,000 after substantial investment and litigation to upgrade its zoning. The new owner built apartments on this parcel.

Parcel 3, south of Parcel 2, consists of 9.34 acres of land. It was zoned for multifamily residential use. An apartment complex, Town Center Apartments, was constructed on a portion of the parcel in 1985. A small portion of the apartment development was located across a highway and was never considered in any of the proceedings. Part of the complex was situated on property purchased by the landowners in 1990 after the takings date. The landowners sold the complex to a third party on October 18, 1994, for $5.8 million.

Parcel 4, south of Parcel 1 and to the east of Parcel 2, contains 3.4 acres of land. It was purchased as raw land in 1989 after the takings date and zoned as residential. It was rezoned for multifamily residential use in 1990 in order to create the requisite zoning density needed for the apartment complex on Parcel 2. Along with Parcel 2, it was sold on December 13, 1995, to a third party.

The landowners planned to build a restaurant, pub, and sports complex on substantially all of Parcel 1. The permit application was filed in June 1988 and denied in November 1988 because the DNR determined that wetlands found on the property were protected by the 1979 Michigan Wetlands Protection Act.[16] The landowners and a construction company filed suit in December 1988, arguing that the permit denial constituted a taking for which they were due just compensation. The trial court, in November 1992, limited its takings analysis to Parcel 1 and determined that the permit denial rendered the property worthless. The trial court awarded damages in the amount of $5.94 million, the appraised value for Parcel 1.[17]

The DNR appealed the trial court's decision, but the Michigan Court of Appeals unanimously affirmed trial court's findings.[18] The Michigan Supreme Court then heard the case and decided that the trial court erred "when it failed to take into consideration the value of the property when [the other parcels are included in the denominator]."[19] The Michigan Supreme Court remanded the case to "determine (1) if parcel three . . . should be included in the denominator parcel, and (2) whether the effect of the regulation on the entire denominator parcel resulted in a taking under the [*Penn*

13. *Id.* at 1478 n.17, 32 ELR at 20630 n.17.

14. Mathematically precise formulae within the financial evaluations of investment-backed expectations required under the *Penn Central* test do not imply a bright-line standard or mitigate Justice O'Connor's concerns that all relevant circumstances be weighed and balanced. *Palazzolo*, 533 U.S. at 636, 32 ELR at 20521. The author has long viewed the outcome of the *Penn Central* test as a benefit-cost balancing. *See* William W. Wade, *Economic Considerations of Regulatory Takings Reform: Judicial Precedent and Administrative Law v. Legislative Intent*, 28 Env't Rep. (BNA) 676 (1995).

15. Economics treats knowledge of regulatory impairment consistent with language in Loveladies Harbor, Inc. v. United States, 28 F.3d 1171, 24 ELR 21072 (Fed. Cir. 1994): "[T]he owner who bought with knowledge of [a particular] restraint could be said . . . to have assumed the risk of any economic loss. In economic terms, . . . the market had already discounted for the restraint, so that a purchaser could not show a loss in his investment attribu[table] to [the regulatory action]." *Id.* at 1177, 24 ELR at 21075.

16. MICH. COMP. LAWS §287.701-722 (repealed in 1995).

17. K&K Constr., Inc. v. Michigan Dep't of Natural Resources, No. 88-012120-CM (Mich. Ct. Cl. Nov. 5, 1992).

18. K&K Constr., Inc. v. Michigan Dep't of Natural Resources, 551 N.W.2d 413 (Mich. Ct. App. 1996).

19. K&K Constr., Inc. v. Department of Natural Resources, 575 N.W.2d 531, 539, 28 ELR 21156, 21159 (Mich. 1998).

Central] balancing test."[20] Trial briefs were filed in August 2001[21] after extensive *de bene esse* depositions, and oral argument was completed January 2, 2002.

On May 28, 2002, the trial court ruled in favor of the plaintiffs: a taking occurred that required the landowners to be compensated.[22] The court held that Parcels 1, 2, and 3 should be included in the denominator parcel. Although the Michigan Supreme Court included Parcel 4 in its decision, the parties stipulated that it should not be included in the takings analysis because the landowners did not purchase this parcel until 1989, after the permit denial.

The trial court's record in *K&K* is rich in analytic detail, allowing one to examine the economic backbone of the *Penn Central* test. The economic history of the four parcels, which included raw land, construction of a small office building, a restaurant on land sold by the landowners, and multiple apartment developments, unfolded over a 25-year period. At the date of the 1998 remand, only the 1988 appraised value of Parcel 1 was a fact in evidence. The values of the other economic elements on Parcels 2, 3, and 4, plus the value of the office building still owned by the landowners, had to be determined on remand. Revenue and cost data were readily available from the landowners' business and tax records; their economic expert relied on these factual records plus expert appraisals to develop the necessary elements for a *Penn Central* analysis.

Defining Financial Terminology Necessary for the *Penn Central* Test

Two of *Penn Central*'s "particularly significant factors" hinge on economic theory, not legal doctrine. Their economic underpinnings perhaps explain why state and federal courts rulings, other than the U.S. Court of Federal Claims in *Florida Rock Industries v. United States* (*Florida Rock V*),[23] have had such a hard time understanding how to measure and judge whether economic viability has been eroded sufficiently to interfere with "distinct investment-backed expectations" (DIBE).[24] While the Justice William J. Brennan majority never defined the two economic concepts, "economic impact" and "investment-backed expectations," their meaning is no mystery to financial and economic theorists and practitioners. Measurable criteria with well-established benchmarks exist by which to gauge the severity of the economic impact to plaintiff within the *Penn Central* test and determine if DIBE have been frustrated.

Financial terms used in takings cases with only the occasional hint of economic understanding need to be defined in order to clarify guidelines for the *Penn Central* test. Key terms are defined and discussed below.

Economically Viable Use

"Economically viable use" provides a sufficient return on investment to attract and hold capital, a "reasonable return" as invoked in *Penn Central*[25] and *Florida Rock V*.[26] "Viability" means that the returns to an investment can be expected to recoup the investment and earn a reasonable return on the investment.

"Economic viability" is tautologically equivalent to the investment earning a competitive, risk-adjusted rate of return. Economic viability in takings cases is concerned with the effect of a permit denial, for example, on the reasonable returns to the property investment. Viability is measured by the return on investment *before* and *after* permit denial. If *before* permit denial the owner's planned project made good economic sense—the owner had a reasonable expected return on investment—and if *after* the permit denial the owner's expected or actual subsequent earnings are too low to recoup the investment and earn a reasonable return on the investment, economic viability has been extinguished or frustrated.[27]

Investment

John Maynard Keynes' 1936 book, *The General Theory of Employment, Interest, and Money*, defines an "investment" as "the right to the series of prospective returns, which [the investor] expects to obtain . . . during the life of the asset [invested in]."[28] Economists have characterized investments in terms of expectations regarding the timing, magnitude, and riskiness of outflows and inflows at least since Keynes. This definition does not preclude the inheritor of a valuable property from having expectations of prospective returns that would need to be compensated if denied by a tort or taking.[29]

Distinct Investment-Backed Expectations (DIBE)

The phrase "distinct investment-backed expectations" arises in *Penn Central*, but Justice Brennan borrowed it

20. *Id.* at 540, 28 ELR at 21159.

21. In its trial brief, the plaintiffs sought $34,284,058, including the original damages, interest, legal and expert fees, with the claim increasing to nearly $400,000 per month. Plaintiff's Trial Brief, K&K Constr., Inc. v. Michigan Dep't of Envtl. Quality, No. 88-012120-CM (Mich. Ct. Cl. Aug. 16, 2001).

22. K&K Constr., Inc. v. Michigan Dep't of Envtl. Quality, No. 88-012120-CM (Mich. Ct. Cl. May 28, 2002).

23. 45 Fed. Cl. 21 (Fed. Cl. 1999). *See also* Whitney Benefits, Inc. v. United States, 18 Cl. Ct. 394, 20 ELR 20610 (Cl. Ct. 1989). This case, which involved a mining dispute, was a total takings case decided before the partial takings paradigm had surfaced (pun intended). Disingenuous arguments by government counsel sought to show that the mining property would make for good cattle grazing in an effort to assert that "some value remains," and hence no taking has occurred. In a post-*Florida Rock V* world, the poor economics of grazing reveals this defense to be even more absurd than originally treated by the judge.

24. *See* Walcek v. United States, 49 Fed. Cl. 248 (Fed. Cl. 2001) (on appeal to the U.S. Court of Appeals for the Federal Circuit, No. 01-5108 (Oct. 9, 2001)), for a recent example where confused economics led the decision astray. Judge Francis M. Allegra confounded notice and reasonable expected returns on investment. In contrast, two recent cases made sense of economic issues and relevant parcels. In East Cape May Assocs. v. New Jersey, 777 A.2d 1015 (N.J. Super. Ct. 2001), the New Jersey appellate court was "satisfied . . . by substantial credible evidence in the record as a whole that the relevant parcel was the eastern tract of the owners' land." *Id.* at 1026. The court remanded the cases to determine if the New Jersey Department of Environmental Protection's offer to permit 64 single-family dwellings on the property, of 366 sought in the permit application, yield an economically viable use of the property. *Id.* at 1032. In Palm Beach Isles Assocs. v. United States, 208 F.3d 1374, 30 ELR 20481 (Fed. Cir. 2000), Judge S. Jay Plager overturned the trial court's conclusion and ruled a categorical taking of the 50.7-acre parcel. *Id.* at 1379, 30 ELR at 20484.

25. 438 U.S. at 136, 8 ELR at 20536.

26. 45 Fed. Cl. at 39.

27. *Id. See also* James C. VanHorne, Financial Management & Policy (12th ed. Prentice Hall 2002).

28. John M. Keynes, The General Theory of Employment, Interest, and Money (1936).

29. Eagle, *supra* note 7, at 440.

from a 1967 article by Frank L. Michelman.[30] Michelman is the original source of the term. Both use it in the same way to imply prospective values that can be reasonably expected. To the economist, DIBE amount to nothing more complicated than prospective returns reasonably expected as an attribute of property investment. Prof. Daniel R. Mandelker's notion is consistent with good economic thought: "Investment-backed expectations arise in property markets, where market participants invest with the expectation that they will obtain [income and] capital gains from the development of their property."[31]

The financial implications of DIBE have become confused with the notion of positive notice.[32] Expectations in Michelman's original context have nothing to do with regulatory regimes that are in place or reasonably anticipated.[33] The *Walcek v. United States*[34] decision is the latest example of notice confusion. In that case, the court wrote, "[DIBE] encompasses two related elements: first, the extent of the plaintiffs' investment in reliance on the regulatory scheme in place at the time of the purchase; and second, the extent to which the regulation of their property was foreseeable."[35] This language has nothing in common with Michelman's language or thought process.

Justice Brennan's simplification of Michelman's original language appears to lead to the transubstantiation of the financial expectations in the original to "positive notice" in more recent cases. Michelman sought to clarify:

> The "fraction of value destroyed" test, [which] . . . appears to proceed by first trying to isolate some "thing" owned by the person complaining which is affected by the imposition. . . . Once having thus found the denominator of the fraction, the test proceeds to ask what proportion of the value . . . formerly attributed by the claimant to that "thing" has been destroyed by the measure. If practically all, compensation is to be paid.[36]

To tighten this standard, Michelman argued that the test should ask not "how much value has been destroyed, but whether or not . . . the measure in question can easily be seen to have practically deprived the claimant of some *distinctly perceived, sharply crystallized, investment-backed expectation*."[37] Brennan's shortening of "distinctly perceived, sharply crystallized" to "distinct," which subsequently metamorphosed into "reasonable," has led astray constitutional protections.[38]

Interference With DIBE

If prospective returns—reasonably anticipated as an attribute of property investment—are diminished so much by an unexpected change in regulation that the investment no longer recoups the investment and earns a reasonable return on the investment, the owner's plans and investment-backed expectations are frustrated.

Takings case law directs courts to look to the change in returns from the relevant parcel as the measure of whether or not permit denial undermines DIBE sufficiently to frustrate economic viability. "Too far," harkening back to Justice Oliver Wendell Holmes' vague guidance,[39] can be clarified to mean nothing more complicated than the returns to the investment after permit denial are insufficient to recoup the entire investment and earn a reasonable return. The 1928 definition in *Nectow v. City of Cambridge*[40] was stated more clearly than in most subsequent land use cases: "[T]he master finds that *no practical use* can be made of the land in question because . . . there would not be adequate *return on the amount of any investment* for the development of the property."[41]

Reasonable Return

"Reasonable" invokes two economic notions, one in terms of the "primary expectation . . . [of] the use of the parcel,"[42] and the other in terms of expected financial rewards.[43] Long-standing, common-law tradition protects property rights to returns on investments because this political system creates incentives to use resources efficiently for the betterment of society, not just for the enrichment of the investor. Without this protection, capital owners would demonstrably underinvest. Likewise, compensation from the government is required for either the physical or regulatory taking of investments on or in property; otherwise, the compact between society's efficient use of resources and investors is broken. Michelman's famous 1967 article makes the point that the failure of government to compensate property owners a reasonable amount for the denial of use of property imposes "demoralization costs," which will make investors use resources less efficiently.[44]

Primary Expectations

Courts have established that "[a] 'reasonable investment-backed expectation' must be more than a 'unilateral

30. Frank L. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of Just Compensation Law*, 80 Harv. L. Rev. 1165 (1967).

31. Daniel R. Mandelker, *Investment-Backed Expectations: Is There a Taking?*, 31 Wash. U. J. Urb. & Contemp. L. 3 (1987).

32. *See* Radford & Breemer, *supra* note 6, for a case law history of this transformation.

33. It is suspected that few have read the long and complicated Michelman article that, in fact, is one lynchpin of takings law. For more on misinterpretations of Michelman's article, see William W. Wade, Penn Central*'s Economic Failings Confounded Takings Jurisprudence*, 31 Urb. Law. 277, 281 (1999).

34. 49 Fed. Cl. 248 (Fed. Cl. 2001) (on appeal to the Federal Circuit, No. 01-5108 (Oct. 9, 2001)).

35. *Id.* at 268.

36. Michelman, *supra* note 30, at 1232-33.

37. *Id.* at 1233 (emphasis added).

38. *See infra* note 7 for a discussion on the metamorphosis of distinct to reasonable.

39. Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).

40. 277 U.S. 183 (1928).

41. *Id.* at 185 (emphasis added).

42. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 136, 8 ELR 20528, 20536 (1978).

43. Florida Rock Industries v. United States, 45 Fed. Cl. 21, 38 (Fed. Cl. 1999).

44. Michelman, *supra* note 30, at 1214-16. Michelman's argument, of course, is consistent with Justice Oliver Wendall Holmes' often cited opinion. In general, while property may be regulated to a certain extent, "if regulation goes too far, it will be recognized as a taking." If the state wants more protection for its citizens, it can pay for it. If the police power is allowed to abridge the contract rights of parties, it will continue until private property disappears completely." Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).

expectation or an abstract need.'"[45] This author has previously explained the concrete steps necessary to demonstrate that the owner's project and expectations were real, reasonable, and backed by concrete activity.[46] For example, in *K&K*, the construction company was physically onsite and beginning the project on Parcel 1, with financing in place, when the DNR caused a cease-and-desist order to be issued by local authorities. The landowners had spent considerable money to oversize two sewage lines and one water line to the office building in anticipation of the heavier load from the planned food and recreation operation. The landowners' activity confirms their plan to build and operate the proposed C.J. Barrymore restaurant, pub, and sports complex.[47]

Expected Returns a.k.a. Time Values of Money

Fundamental to banking and investing, money and assets have time values, i.e., past nominal amounts owed must be paid back with higher sums today in order to account for the earning power of the original asset during the time that has passed. By compounding past values to the present and discounting future values to the present, financial practitioners place financial values on a common ground. Financial assets have to be valued in a present value context because of time values, including risk and inflation. An appropriate interest rate, or discount rate, is used to shift values of an asset through time. The discount rate to achieve equivalence takes into account: (1) the fact that money has time value absolutely, i.e., people would rather have the money in hand today rather than next week or next year; (2) inflation that causes a decrease in the purchasing power of money; and (3) any risk that the repayment will not be made in full or on time.[48]

Reasonable expectations, not wildly good luck, are protected by the Fifth Amendment.[49] The notion of a "reasonable return" is equivalent to the investor's opportunity cost of capital—what he would expect to earn from investing someplace else with comparable risk. The two-prong reformulation of the *Penn Central* test established in *Agins v. City of Tiburon*[50] requires compensation if the regulation denies the owner "economically viable use" of the property. Thus, "reasonable return" is tantamount to economically viable use.

Investments in assets of a certain risk require an expected return at a certain rate that equals the opportunity earnings foreclosed from another investment opportunity. Opportunity cost can be called the business investor's expected, indeed required, minimum hurdle rate of return associated with projects of a certain risk. The hurdle rate is higher than the realized rate of return for the typical business investor because some of the typical firm's portfolio of projects may earn below expectations. Anticipating this outcome, the investor requires that hurdle rates for projects of comparable risk include risk premiums above the average historic return on capital.

Reasonable return, opportunity cost of investment, and hurdle rate of return are used interchangeably by financial practitioners, although reasonable return also can be used to refer to a realized after-the-fact number.

Reasonable Return in *K&K*

A proxy to initiate the search for the appropriate hurdle rate for use in the *Penn Central* test would be the long-term actual average rate of return earned by the plaintiff in similar projects, or, in the absence of such information, the average long-term rate of return on assets of similar risks in the geographic area. Returns to real estate investment trusts (REITs) with portfolio holdings similar to the plaintiff's proscribed project provide another estimate of historically based industry or developer returns.

One of the landowners in *K&K* testified to 12% as his expected return on real estate investments at trial.[51] This was the plaintiff's articulated investment expectation. The plaintiff's economic expert treated 12% as both a constant dollar and a nominal cost of capital in trial analyses to bracket plaintiff expectations between 8% and 12%. The 12% number was converted to 8% to eliminate inflation over the 24-year period between 1976 and 1999. Both numbers are below the plaintiff's appraisal expert testimony of 15% to 20% as a reasonable expected return to real estate investments in the local county, Oakland, Michigan,[52] one of the wealthiest counties in the country. REIT investors obtained 14% to 16% before tax over a similar period. Plaintiff's claimed expectation is lower than market expectations; it is conservative. Frustration of economic viability hinges on a reasonable expectation of return; thus, the lower the expectation, the more conservative it is.

Conducting the *Penn Central* Test in *K&K*

How specifically should the plaintiff's data and information be analyzed within the *Penn Central* test? The *Palazzolo* "remand for further consideration of [the facts] under the

45. Ruckelshaus v. Monsanto Co., 467 U.S. 986,1005-06, 14 ELR 20539, 20543 (1984).

46. *See* Wade, *supra* note 33, at 299 (citing Whitney Benefits, Inc. v. United States, 18 Cl. Ct. 394, 20 ELR 20610 (Cl. Ct. 1989), and Rehard v. Lee County, 978 F.2d 1212 (11th Cir. 1992)).

47. Moreover, the original C.J. Barrymore restaurant, which began operations in 1988 in a nearby county, was still a large business operation in 2001 at the time of the parties' *de bene esse* depositions held during spring 2001. The landowners' profitability expectations are consistent with the success of the original location.

48. Recognition of the time values of money in *Tahoe-Sierra* would have revealed that land investments sitting idle for 32 months may have been rendered uneconomic even though they recovered some value after the moratorium was lifted. Arguably, property does not lend itself to discrete temporal units as viewed by the *Tahoe-Sierra* decision. Idle time devalues property investments. A *Penn Central* analysis might have shown that the present values of the properties were significantly eroded, i.e., investment-backed expectations were frustrated. Tahoe-Sierra Preservation Council, Inc. v. Tahoe Reg'l Planning Agency, 122 S. Ct. 1465, 1484, 32 ELR 20627, 20632 (2002). Some value remaining—or returning after 32 months—does not overcome a partial takings analysis.

49. Property and takings cases typically do not protect the "highest and best use" of land. A California ruling articulates the general principal. The Fifth Amendment does not protect the "right on the part of landowners to develop their property for the maximum economic profit." Terminals Equip. Co. v. City & County of San Francisco, 270 Cal. Rptr. 329, 335 (Cal. Ct. App. 1990).

50. 447 U.S. 255, 260, 10 ELR 20361, 20362 (1980). The *Agins* test held that a taking occurs if the regulation either does not "substantially advance legitimate state interests," or denies the property owner "economically viable use" of the property.

51. K&K Constr., Inc. v. Michigan Dep't of Natural Resources, No. 88-012120-CM, trial transcript at 54 (Mich. Ct. Cl. Dec. 17, 1991).

52. Deposition of James E. Mawson at 14, K&K Constr., Inc. v. Michigan Dep't of Natural Resources, No. 88-012120-CM (Mich. Ct. Cl. Apr. 13, 1999).

principles set forth in *Penn Central*" brings into sharp focus the partial takings analysis articulated by the Federal Claims Court in *Florida Rock V*.[53] The concept of a partial taking arose from Judge S. Jay Plager's *Florida Rock IV* ruling in the U.S. Court of Appeals for the Federal Circuit: "Nothing in the language of the Fifth Amendment compels a court to find a taking only when the Government divests the total ownership of the property[.]"[54] In *Florida Rock V*, Judge Loren Smith clarified the conditions under which "a severe, but not total loss of economically viable use of plaintiff's property" becomes a compensable taking.[55] Judge Smith established "a logical framework [to evaluate a partial taking] based upon well-established rules and principles, . . . a stable framework," to undertake the balancing called for in the *Penn Central* three-factor balancing test.[56] This framework directs the parties to provide quantitative answers to three straightforward economic questions:

1. Has the value of the relevant parcel been significantly diminished?
2. Can investment in the relevant parcel be recouped? Recouped at opportunity cost?
3. Does the return on investment in the relevant parcel before and after the permit denial reasonably exceed the opportunity cost of money, i.e., is the return to the entire investment economically viable before and after permit denial? Or, does the permit denial frustrate investment-backed expectations?

Florida Rock V concludes that "a partial regulatory taking may be found where a regulation results in a deprivation of a substantial part but not essentially all of the economic use or value of the property."[57] The plaintiff's expert in *K&K* applied and extended Judge Smith's approach. Using the facts set forth in *K&K*, the steps for conducting a partial regulatory taking analysis are discussed below.

Diminution in Value

The first prong of the *Penn Central* test examines the extent of economic impact caused by a permit denial. This typically is measured by before-and-after valuations of the relevant property to pin down the magnitude of reduction in value.[58] This step is the beginning point of the analysis. Before-and-after valuation reveals only the magnitude of change, which has to be nontrivial.

Dates are important to the economic values to be analyzed within the *Penn Central* framework. The before-and-after permit denial valuation of the relevant property denotes a specific date before and after which exogenous regulatory conditions differently influenced expectations. The benchmark year is typically the date of permit denial. Returns foreclosed by permit denial and investments in property acquired possibly decades before must be placed on equal footing in terms of dollars at stake in the case. Equal footing requires all dollars to be benchmarked at either the date of the permit denial or date of trial. All dollars must be measured in the same metric, otherwise, the units referred to as dollars are as different as the proverbial apples and oranges.

In *K&K*, permit denial occurred in November 1988. Land acquisitions began in 1976 and economic activity involving the four parcels subject to the remand instruction continued through the time of trial. Economic activity at issue in *K&K* sprawls over 25 years, 1976 to 2001. Two epochs, first of high inflation and then of low inflation, encompass the *K&K* facts—as is the case in several other takings cases where the land was bought decades before a change in regulation stopped the ultimate development plan.[59]

Tabulating the owner's basis in the property in terms of investments and subsequent costs in various years' dollars makes no sense when inflation during the post-Vietnam War period hit the double digits. Inflation-devalued dollars cannot be used to pay back pre-inflation investments. The value of the opportunity foreclosed in 1988 has to be compared to investment costs also expressed in 1988 dollars. In this situation, economists convert all dollar values to a benchmark year, 1988 dollars in *K&K*, so that an apples to apples comparison is achieved.

Conducting the analysis in benchmark dollars assures that values and investments discussed and used in the *Penn Central* test are measured in comparable units. *Florida Rock*

53. Florida Rock Indus. v. United States entered the court system 20 years ago over the denial of a permit by the U.S. Army Corps of Engineers to mine 98 acres of a 1,560-acre parcel of aggregate limestone purchased in 1972, before the regulatory prohibition was subsequently imposed by federal law. Florida Rock Indus. v. United States, 8 Cl. Ct. 160, 15 ELR 20626 (Cl. Ct. 1985). The U.S. Court of Claims found in favor of the plaintiff. The case was reversed by the Federal Circuit in 1986, *Florida Rock II*, 791 F.2d 893, 16 ELR 20671 (Fed. Cir. 1986); retried in 1990, *Florida Rock III*, 21 Cl. Ct. 161, 20 ELR 21201 (Cl. Ct. 1990); and, reversed again in 1994 by the Federal Circuit, *Florida Rock IV*, 18 F.3d. 1560, 24 ELR 21036 (Fed. Cir. 1994). Valuation testimony on remand was heard on remand in April 1996. After three years, Judge Loren Smith issued his decision on August 31, 1999, holding that compensation was due for the originally foreclosed 98 acres of limestone aggregate. *Florida Rock V*, 45 Fed. Cl. 21 (Fed. Cl. 1999). On March 28, 2000, the U.S. Court of Federal Claims entered final judgment on the partial taking of the 98-acre parcel for $752,444, plus interest from October 2, 1980, plus attorney and expert costs of $1,320,377, and urged the parties to negotiate an award related to the remaining 1,462 acres. 2000 WL 331830 (Fed. Cl. Mar. 28, 2000). The appeal of the 1999 and 2000 decisions was dismissed by the Federal Circuit at the request of the parties upon their reaching a settlement. 2001 WL 1173172 (Sept. 12, 2001). The federal government finally paid Florida Rock $21 million in the fall of 2001 to settle the pending case and dispose of the claim with respect to the remaining 1,462 acres. There will not be a *Florida Rock VI*!

54. *Florida Rock IV*, 18 F.3d at 1568, 24 ELR at 21040.

55. *Florida Rock V*, 45 Fed. Cl. at 23. Of course, this remark is aimed at understanding when a "regulation goes too far" as first laid out in Pennsylvania Coal v. Mahon, 260 U.S. 393, 415 (1922).

56. *Florida Rock V*, 45 Fed. Cl. at 23.

57. *Id*. at 31.

58. A recent article explains that the courts' overreliance on "comparable sales valuation methods" at the expense of more sophisticated "income and land residual approaches leads to inaccurate market value estimates and, therefore, unjust compensation." Aaron N. Gruen, *Takings, Just Compensation, and the Efficient Use of Land, Urban, and Environmental Resources*, 33 Urb. Law. 517 (2001). *Florida Rock V* contains a paragraph that exactly proves Mr. Gruen's point:

> Plaintiff's valuation expert . . . testified that, because . . . there were no comparable sales, alternative approaches must be relied on. The court, however, characterized plaintiff''s alternatives, the discounted present value and royalty models, as 'too uncertain . . . too indefinite, . . . and too speculative.' Still the court considered and adopted the models as indications of a high limit on value.

Florida Rock V, 45 Fed. Cl. at 33. So, the court in *Florida Rock V* relied on poorly supported comparables instead of on a well-documented cash flow analysis. Which is more speculative?

59. Notably, Palazzolo v. Rhode Island, where the land was initially purchased in 1959.

V adjusted for inflation using the consumer price index. In *K&K*, the producer price index (PPI) more closely matches materials used in construction and would be more conservative over the decades between purchase and trial court decision.[60] The landowners' annual cash flows were converted to 1988 dollars using the PPI.

Figure 1

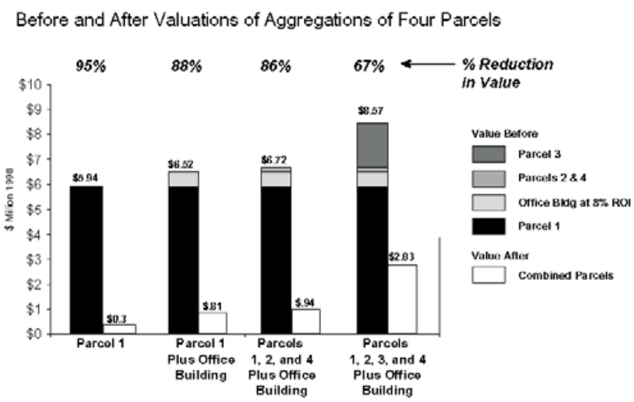

Figure 1 shows the before-and-after valuations of the four parcels in various aggregations. Parcel 1 compares the trial court's initial award before valuation, $5.94 million, with the appraised value after permit denial, $297,000. Adding the equity value of the office building on Parcel 1 brings an additional $579,200 *before* the permit denial and $510,600 *after* permit denial to the total value—the *before* number being the construction cost; the *after* number being the economic value of the building. The building had not returned its own investment at 8% after 10 years of operations, plus assuming it sold at 10 times 1998 earnings. The purchase and sale of Parcels 2 and 4 adds $203,000 to the *before* value and $135,000 to the *after* value, which increases the loss. The landowners had originally planned to develop more apartments on these parcels and had spent substantial money upzoning the property. They sold it in 1995 after selling the Town Center Apartments on Parcel 3.

If the relevant parcel includes 1, 2, and 4, denial of the permit to develop Parcel 1 reduced the values at stake by 86%. This satisfies the nontrivial loss standard of the first prong of the *Penn Central* test.

Adding Parcel 3 increases equity *before* permit denial by $1.853 million and *after* permit denial by $1.887 million. The added investment in Parcel 3 returned a small profit in excess of the 8% opportunity cost. This raises the *before* valuation of the four parcels to $8.57 million and the *after* valuation to $2.83 million. If the relevant parcel includes the Town Center Apartments on Parcel 3, reduction in value is shown to be 67%—still a nontrivial amount.

In all combinations, the values in the rest of the relevant parcel do not offset the lost opportunity to develop Parcel 1. Substantial reduction in value is evident in any grouping of parcels *without* Parcel 1. Small losses from Parcels 2 and 4 and the office building worsen the effect when the relevant parcel is 1, 2, and 4. The small gain on the sale of the Town Center Apartments does not offset the loss of Parcel 1. Parcel 1 is the critical difference between profit and loss over any aggregations of parcels.

The Town Center factual outcome is contrary to one implicit reason for not paying compensation to a developer in *District Intown Properties v. District of Columbia*.[61] The developer was denied a permit to build townhouses adjacent to its existing "large, classic apartment building . . . located across the Connecticut Avenue from the National Zoo."[62] In that case, the income (not in the record) from the Cathedral Mansions South Apartment building considered to be within the relevant parcel apparently overcame any potential economic dislocation associated with declining the permit to add the townhouses. Judge Stephen Williams' separate concurring opinion argued that economic information in the record was insufficient to guide the circuit judges to an informed opinion about the severity of economic impact and diminution of investment-backed expectations for the relevant parcel. The plaintiff's record might have been strategically silent on economic evidence because the plaintiff's counsel possibly knew that returns from the apartment building to the parcel as a whole were strong enough to fail the second prong of the *Penn Central* test. The extensive factual record developed by K&K attorneys showed that, by contrast, the value of the Town Center Apartments did not offset the value of the taken Parcel 1.

Severity of the Economic Impact

Judge Smith recognized in *Florida Rock V* that diminution in value of the relevant property is not dispositive of the magnitude of the economic impact, i.e., diminution alone is not enough to reveal whether economic viability has been destroyed. Economic viability has to be measured with reference to returns to investments in order to evaluate standard financial performance measures.

Florida Rock V and *Whitney Benefits, Inc. v. United States*[63] applied standard economic methods to evaluate the severity of economic impact. *Whitney Benefits* broke new ground by explicitly adopting the discount cash flow (DCF) model as the basis for evaluating the lost value of a foreclosed coal mine. A reasonable projection of the dollar flows of the lost business opportunity is one standard for estimating economic injury today. (Any number of financial

60. Judge Allegra's opinion in Walcek v. United States is misplaced in its ruling excluding the effect of inflation in the analysis: "[I]n determining the plaintiffs' basis or investment in the Property, . . . it [does not] seem appropriate to adjust the plaintiffs' historical costs for inflation. . . ." 49 Fed. Cl. 248, 266 (2001) (on appeal to the Federal Circuit, No. 01-5108 (Oct. 9, 2001)). All financial institutions recognize time value of money comprised of the three elements listed above: time preference, risk and inflation. Failure by a court, such as the Federal Claims Court in *Walcek*, to recognize time values of money, results in a windfall loss for the party demanding repayment and a windfall gain for the payor. Paying back a past $100 obligation with $100 in today's dollars becomes more nonsensical the longer the $100 has been due. The party who has foregone payment for the earning power of his invested asset over time is still due the cumulative value of the original investment plus interest at his opportunity cost of money. If that interest is not included in the eventual repayment (return), the investor is clearly disadvantaged relative to having had the money to invest elsewhere.

61. District Intown Properties v. District of Columbia, 198 F.3d 874 (D.C. Cir. 1999).

62. *Id.*

63. Whitney Benefits, Inc. v. United States, 926 F.2d 1169, 21 ELR 20806 (Fed. Cir. 1991).

texts, practitioner manuals, and articles explain long-standing methods and benchmarks.)[64]

Severity of economic impact, or interference with DIBE, is measured in two steps, following *Florida Rock V.* Recoupment of investment and recovery of the opportunity cost of (reasonable return on) the investment are the sequential benchmarks used in *Florida Rock V.*[65] This means that the crucial determinant by which to judge that a compensable partial taking has occurred is whether the value of all K&K investments and expenditures in the relevant property (whether 1, 2, and 4, or including 3), including a reasonable return, are recoverable *after* the permit denial.

In *Florida Rock V*, total investment in the property was measured by the actual expenditures for acquisition of the property, property taxes, and development and holding costs from the date of purchase to the time of trial. The annual nominal dollar amounts were adjusted for inflation.[66] The post-permit denial value of the property "could have recovered barely half of its inflation adjusted investment in the subject property."[67]

Recoupment of investment is the way Judge Smith measured severity of economic impact. Another way of stating the recoupment question in terms of the four parcels in *K&K* is, "Do the gains from other investments within the relevant parcel offset the loss of the opportunity to develop Parcel 1?" This question has to be answered in steps illustrated on the following figures.

Figure 2

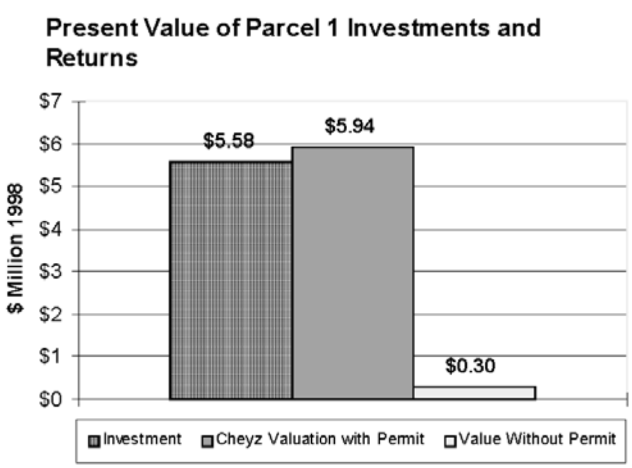

Figure 3

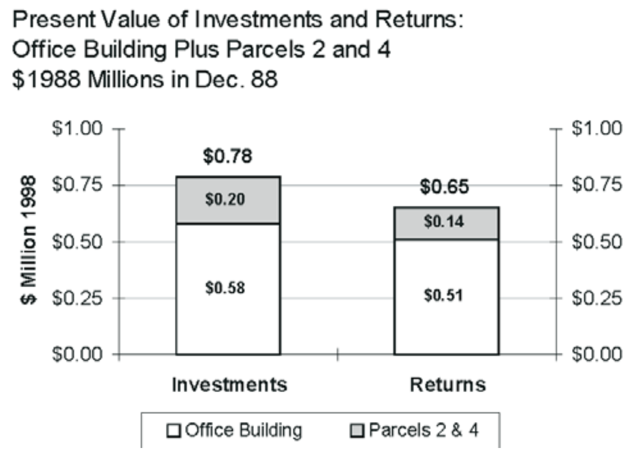

Figure 2 shows the present value of Parcel 1 investments and returns with and without the planned activity. Two points can be inferred from the figure: (1) the valuation (return to investment) for Parcel 1 is greater than the investment cost *before* permit denial; and (2) the return is virtually zero and greatly less than investment *after* permit denial. So, the planned use of Parcel 1 would have recouped the investment plus an 8% return on the investment. This comparison confirms the trial court finding that there was a significant loss related to Parcel 1. The remand question then becomes: "Do the gains from other investments within the relevant parcel offset the loss of the opportunity to develop Parcel 1?" For instance, if there were a gold mine elsewhere among the parcels that would greatly overshadow the loss of the development opportunity on Parcel 1, takings law allows the state to deny use of the parcel without compensation.

The empirical analysis in *K&K* shows that "no gold mine exists." Parcels 2 and 4 were sold at a loss when the cash flows are restated to 1988 dollars and discounted at 8%. Figure 3 shows the investment to be $203,000; return from sale is $136,000. The office building has not yet returned its investment, even if it were assumed sold in 1999 with a 10 times cap rate. Inclusion of the office building plus Parcels 2 and 4 worsens the plaintiff's economic outcome. If the relevant parcel were 1, 2, and 4, no gains exist from other activities to pay back investments in these activities. Consequently, no surplus returns exist to offset the loss of planned use of Parcel 1.

Inclusion of the sale of Town Center Apartments in 1994 for $5.8 million ($5.55 million net of transaction costs) on Parcel 3 does not offset the severe economic impact arising from denial of the permit on Parcel 1. The investment did not produce a windfall. Only 108 of the 192 apartment units of the Town Center Apartments were within Parcel 3. The apartments carried a cumulative $1.55 million loss through the end of 1993. A $3.5 million loan repayment left only a small return to equity within Parcel 3.

64. *See also* Robert Trout & William W. Wade, *The Role of Economics in Regulatory Takings Cases*, Litig. Econ. Dig., Fall 1995, at 1; Wade, *supra* note 33, at 277-308. This doesn't rule out other methods discussed *supra* note 58.

65. *Florida Rock V*, 45 Fed. Cl. at 38.

66. See particularly footnote 12 of the *Florida Rock V* opinion dealing with the economist's estimate of economic basis in the property. *Id.* at 38 n.12. The calculation as undertaken by Judge Smith overlooked the opportunity cost of money.

67. *Id.* at 38.

Figure 4

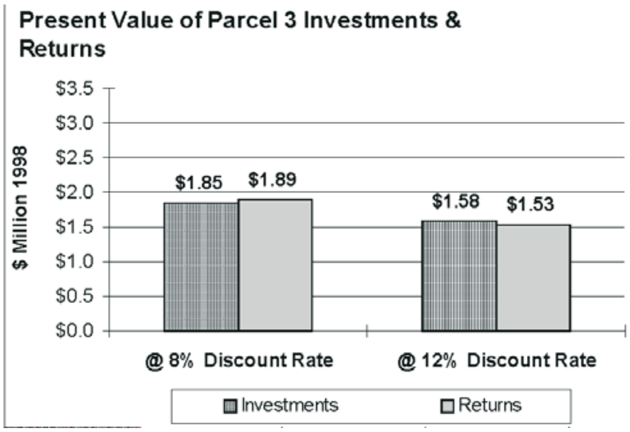

Figure 5

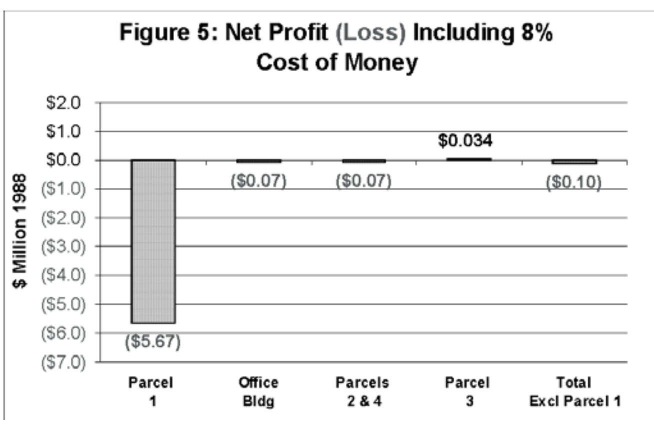

Figure 4 shows the net results for Parcel 3 with both an 8% and 12% cost of money. Eliminating apartment revenues outside of Parcel 3, the return to Parcel 3 is $1.89, assuming an 8% cost of money. The landowners' equity investment in Parcel 3 is $1.85 million. The $34,000 gain does not offset the loss in Parcel 1. In essence, after holding the Town Center Apartments from 1985 to 1994, the owner got his money back with slightly more than an 8% return. The apartment development investment was a money loser until 1994 when it was sold because the early 1990s rustbelt recession weakened the rental market.

Cumulative cash flow analysis is crucial to valuations of income producing assets like the Town Center Apartments. Defendants' and plaintiffs' appraisal experts reached almost identical valuations of the apartments—$3.0 million. Neither incorporated the cumulative cash flow loss through year-end 1993 of $1.55 million dollars. Plaintiffs' appraiser Mawson agreed that "an appraised value on these apartments may not be the same value to the Plaintiffs . . . . We appraised them on a free and clear basis."[68] This confirms that appraisal values represent only data for further financial analysis. An appraised value of $3.0 million ignores consideration of the outstanding bank loan on the property; this follows general appraisal rules.

The magnitude of earnings that translate to the owner's income statement to offset the losses related to permit denial are the relevant issue in the *Penn Central* examination of values remaining within other parts of the relevant parcel. Clearly, the proceeds from the sale of the Town Center Apartments had to retire the bank loan and recover the loss before any surplus proceeds were available to mitigate the Parcel 1 lost opportunity. The appraisal evidence in the record overlooked the step to translate market values to the owner's pocketbook.

Figure 5 aggregates the results over the parcel as a whole, including Parcel 3. If the returns from Parcels 2, 3, and 4 were larger than the loss on Parcel 1 due to the permit denial, this would show that the other economic activity within the relevant parcel offsets the loss from the permit denial. In other words, the other activity would recoup the investment in the entire parcel as a whole. This was not the case.

The investments in Parcels 2 and 4 plus the office building did not return an amount sufficient to cover their cost of money, a reasonable expectation of 8%. These investments are shown losing $70,000 each. So, the investment return on the parcel as a whole excluding Parcel 3 is negative $5.81 million net. Parcel 3 returns $34,000 more than its incremental investment including the cost of money—rounded to $0.04 million on Figure 5. Combined, the plaintiff lost $100,000 on Parcels 2, 3, and 4. Even with Parcel 3 included, the financial results of the three parcels do not offset the loss related to Parcel 1. The financial results of Parcels 2, 3, and 4 do not provide a return to the investment in the whole parcel that will recoup investments in those parcels plus the investment in Parcel 1.

Frustration of DIBE

In a partial taking, how should the court evaluate the critical prong of the *Penn Central* test, i.e., demonstrate that plaintiff was deprived of economically viable use of the relevant property? The fact that the *Penn Central* court did not implement a numerical formula to decide when a taking has occurred does not mean that courts are not remiss in defining the benchmarks for measuring interference with investment-backed expectations. Economic decision rules play an obvious role in determining when a regulation undermines investment-backed expectations sufficiently to award compensation, i.e., when the regulation "goes [so] far" that it crosses a relevant threshold.[69]

Economists and financial practitioners define that threshold in terms of the relation between the present value of expected returns from the investment and the present value of the cost of the investment. A relevant threshold is not a bright line. Different circumstances move the line. Empirical details and assumptions must always be sorted out. The discussion above directed that all return and investment values be benchmarked to the date of permit denial. After doing

68. Deposition of James E. Mawson at 33, K&K Constr., Inc. v. Michigan Dep't of Natural Resources, No. 88-12120-CM (Apr. 13, 1999).

69. Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).

that, the threshold calculation is no more complicated than comparing the ratio of expected returns (before and after permit denial) to investment costs.

Takings Fraction for the Relevant Parcel Measures Economic Viability

An earlier article[70] argued that the relevant denominator of the takings fraction is the present value of the incremental investment whose returns are reduced by the regulation. The argument showed that the original *Penn Central* reliance on the parcel as the whole city block upon which Grand Central Station stood instead of the planned investment for the building in the air space was a mistaken application of Michelman's "'thing' . . . destroyed by the [regulation.]"[71] The argument showed that takings decisions anchored to the notion of *Penn Central*'s "relevant parcel" are anchored to an error.[72] Case history cited by Professor Eagle reveals that the courts have significant difficulty defining the relevant parcel.[73] The continuing search for a coherent jurisprudence governing the relevant parcel directs this author's attention to explication of economic considerations for measuring deprivation and suggesting guideline to know when economic viable use is extinguished, whatever relevant parcel comprises the denominator of the takings fraction.

"Mere Diminution" Distinguished From Frustration of DIBE

Walcek is the most recent decision to misconstrue the calculation and evaluation of the takings fraction. "The economic analysis under the first *Penn Central* factor is often expressed in the form of a fraction, the numerator of which is the value of the subject property encumbered by regulation and the denominator of which is the value of the same property not so encumbered."[74] While before-and-after valuations are the starting point, Judge Allegra misses the point made by Judge Smith in *Florida Rock V*. Mere diminution, however irritating to the investor, is not dispositive of economic frustration.

Takings Fraction Correctly Formulated

The correctly formulated takings fraction distinguishes "mere diminution," which has never been sufficient to justify paying compensation, from frustration of DIBE. The ratio of "returns after" to "returns before," while a necessary beginning is not a sufficient measure to evaluate investment decisions. In contrast, the ratio of returns before and after to investment does facilitate standard financial decision analysis.[75] The ratio of expected returns to investments in the relevant property defines the takings fraction. The numerator tabulates *before* and *after* permit denial returns. The denominator in both cases tabulates investments in the relevant property, where the relevant property is defined as the parcel as a whole by current law. The takings fraction is the ratio of the two. Thus, it measures returns with and without the foreclosed opportunity to total investment in the property.

Calculation of the takings fraction per se reveals the change in economic viability associated with the permit denial. The ratio of returns to investments, discounted with the opportunity cost of money, reveals both recoupment of investment and demonstrates economic viability—or lack thereof:

> Ratio greater than one (> 1) implies that returns recoup investment including a reasonable return.
> Ratio less than one (< 1) implies economically viable use frustrated by insufficient returns.
> Thus, a ratio or fraction >1 implies economic viability; a fraction <1 implies not.

If this ratio were diminished by the permit denial, but remains greater than one, this would be evidence of an "economic impact," i.e., profits are lowered but economic viability is not extinguished. Such a reduction would not be sufficient to frustrate investment-backed expectations assuming that the calculation were done with the appropriate hurdle rate. An economic impact that is less than fatal to the owner's profit expectations may be characterized as consistent with Justice Holmes' notion that "property may be regulated to a certain extent . . ." as part of the cost of being part of the economic system.

Compensation for a taking is due if the ratio were greater than one before permit denial (economically viable) and less than one after permit denial (uneconomic), regardless of any remaining positive values. Positive values remaining may be sufficient to preclude a taking under the *Lucas v. South Carolina Coastal Council*[76] categorical standard, but merely mitigate damages to be compensated for a taking under the *Penn Central* balancing standard. Property investments are not economically viable merely because the property retains "some" positive value.

Calculation of the K&K *Takings Fraction*

The *K&K* takings fraction analysis is shown on Tables 1 and 2.[77] Table 1 shows the undiscounted results; i.e., all values restated in 1988 dollars with no opportunity cost of money included. Table 1 deals only with recoupment of investment. The table is consistent with Judge Smith's *Florida Rock V* calculation discussed above. Investment is not recouped without Parcel 1 in either relevant parcel. The takings fraction, the ratio of before-and-after losses to investments shown in the left hand columns, is less than one for either ag-

70. Wade, *supra* note 33, at 304.

71. *See* Michelman, *supra* note 30, at 1232-33.

72. Error or not, so much case law bears on considerations of the relevant parcel that the reader is referred to Steven J. Eagle, Regulatory Takings §11-7 (Lexis 2d ed. 2001), to trace legal developments.

73. Typically referred to as the "denominator problem," case history confirms that *Lucas* footnote 7 remains true: "[U]ncertainty regarding the composition of the denominator in our [takings] fraction has produced inconsistent pronouncements by the court." Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1016 n.7, 22 ELR 21104, 21107 n.7 (1992). This uncertainty plagues lower courts.

74. Walcek v. United States, 49 Fed. Cl. 248, 258 (2001) (on appeal to the Federal Circuit, No. 01-5108 (Oct. 9, 2001)).

75. Standard financial decision analysis refers to the ratio of the present value of cash inflows to investment outflows as the Profitability Index. *See, e.g.*, Van Horne, *supra* note 27, at 142.

76. 505 U.S. 1003, 22 ELR 21104 (1992).

77. The *before* value for Parcel 1 in both cases is taken from the trial court record; the *after* value for Parcel 1 is based on the testimony of the plaintiffs' appraisal expert. Other values were calculated by the plaintiffs' economic expert. Interested readers may contact the author.

gregation without Parcel 1. The percent losses shown in the middle of the table measure the effect of the Parcel 1 permit denial on the value of the three parcel aggregations. The loss shown in the right hand column represents the damages determined at trial court: $5.94 million less the speculative residual value of $297,000, adduced in the remand.

Table 1
K&K Takings Calculations - Undiscounted*

			Value/Cash Flows		**% Loss**	**Taking Fraction**		**Loss**
Parcel	Land Investment	Building Investment	Before	After		Before	After	
Parcel 1	$3,061	$0	$5,940	$297	-95%	5940/3061	297/3061	$5,643
Parcel 1 & Office Building	$80	$503.20	$583.20	$496				
Capital Value of building at 10% (1988), less debt			Included in $583.20	$404.10				
Parcels 2 & 4	$159.80	$0	$159.8	$235.80				
Parcels 1, 2 & 4	$3,300.80	$503.20	$6,683	$1,432.90	-79%	6683/3804	1433/3804	$5,643
Parcel 3	$90.60	$2,643	$2,733.60	$2,965.20				
Parcels 1, 2, 3, & 4	$3,391.40	$3,146.20	$9,416.60	$4,398.10	-53%	9417/6538	4398/6538	$5,643

* Dollars = $1,000 with a 1988 value

Table 2
K&K Takings Calculations - Discounted at 8% Cost of Money*

			Value/Cash Flows		**%**	**Taking Fraction**		**Loss**
Parcel	**Land Investment**	**Building Investment**	**Before**	**After**	**(Loss)**	**Before**	**After**	
Parcel 1	$5,582	$0	$5,940	$297	-95%	5940/5582	297/5582	$5,643
Parcel 1 & Office Building	$80	$499.20	$579.20	$337.30				
Capital Value of building at 10% (1988), less debt			Included in $579.20	$173.30				
Parcels 2 & 4	$203.30	$0	$203.30	$136.10				
Parcels 1, 2 & 4	$5,865.3	$499.20	$6,722.50	$943.70	-86%	6723/6365	944/6365	$5,643
Parcel 3	$103	$1,750.20	$1,853.20	$1,887.20				
Parcels 1, 2, 3, & 4	$5,968.30	$2,249.40	$8,575.70	$2,830.90	-67%	8576/8217	2831/8217	$5,643

* Dollars = $1,000 with a 1988 value

Table 2 shows the taking fraction including a reasonable return assumed to be 8%. The fraction before the permit denial on Parcel 1 is shown to exceed 1. The fraction is not close to 1 after the denial of the permit, whether the relevant parcel is 1; 1, 2, and 4; or 1, 2, 3, and 4. The permit denial of Parcel 1 frustrated recoupment of investment, whichever parcel as a whole serves as the denominator as shown on Table 1. The permit denial of Parcel 1 frustrated reasonable return on investment, whichever parcel as a whole serves as the denominator as shown on Table 2.

Another case in Michigan reveals the sort of circumstances that illustrate when economic viability of the relevant parcel, e.g., the parcel as a whole, is not frustrated. In *Volkema v. Michigan Department of Natural Resources*,[78] Mr. Volkema wanted to add a ride to his existing 24.6 acre waterpark and sought a permit to fill an additional 6 acres of wetlands. The state demonstrated that the ongoing waterpark business was a viable business, and the court ruled against Mr. Volkema because the denial of the fill permit on the wetlands did not erode economic viability. The court ruled that compensation is required when a land use regulation denies economically viable use of the land, or, restated, when economically beneficial or productive use of the relevant parcel is foreclosed.

K&K Parcel 3—Part of Relevant Parcel?

Although the unique empirical circumstances of *K&K* show that inclusion of Parcel 3 in the relevant parcel does not affect the outcome of a *Penn Central* analysis, Parcel 3 should not be part of the relevant parcel. A number of reasons consistent with "the multi-faceted approach" described in *Machipongo Land & Oil Co. v. Commonwealth Department of Environmental Resources*[79] suggest why the denominator should not include Parcel 3. As illustrated below, the apartments on Parcel 3 are not economically related with the proscribed C.J. Barrymore restaurant and sports complex planned for Parcel 1 in ownership, time, contiguity, commercial operation, or investment plan:

> Parcel 3 is not contiguous to Parcel 1.
>
> Parcel 3 does not have the same exclusive ownership, i.e., returns to Parcel 3 activities would not accrue to the landowners in the same way as proscribed returns from Parcel 1. Hence, gains from Parcel 3 would not offset losses from Parcel 1 dollar for dollar.
>
> Part of the Town Center Apartments were under construction in 1985, before the C.J. Barrymore project was conceived.
>
> The apartments were occupied before the Parcel 1 permit was denied.
>
> The 108 units of apartments developed on Parcel 3 are related to the 84 units in the nearby vicinity, not to Parcel 1.
>
> The plan for Parcel 1 and the Town Center Apartments were never a single cohesive development plan. No factual information relates the office building, apartments, and restaurant development plan to each other. No architectural rendering, models, etc. show relatedness.
>
> The parcels were not treated as a single unit; the activities are unrelated; zoning is commercial on Parcel 1, and residential on Parcels 2, 3, and 4. Parcels 2 and 4, located between Parcels 1 and 3, were never developed.
>
> The use of Parcel 3 as apartments has nothing in common with the planned use of Parcel 1.
>
> No sharply crystallized investment-backed expectations overlapped the investments in Parcels 1 and 3 by time or complementarity. The apartments are akin to the buildings in the vicinity of Grand Central Station excluded by the Supreme Court in *Penn Central*.
>
> The apartment business is unrelated to the lost business opportunity of C.J. Barrymore. No commercial overlap exists.

No overwhelming legal theory exists in case law that translates to a "relevant parcel decision rule." Perhaps the best logic for excluding Parcel 3 is seen by contrasting *K&K* and *Volkema*. In *Volkema*, Mr. Volkema sought to treat his waterpark expansion ride as a stand-alone six-acre parcel, but the court disagreed. "The entire 24.6 acres [of developed land] is admittedly of high value to the plaintiffs. . . . [A]lthough plaintiffs lost the use of approximately six acres of the remaining . . . Parcel, when viewed as a whole, [it] continues to have substantial value and may still be used . . . for commercial purposes."[80] The entire waterpark is a single commercial unit, which Professor Eagle argues is a better basis for defining the related, relevant parcel than a host of other court findings.[81] By contrast, Parcel 3 in *K&K* has little in common with Parcel 1 as demonstrated above. Neither is it part of a related commercial unit.

On remand, the trial court in *K&K* considered many of these issues but included Parcel 3 in the denominator because "[P]laintiff's . . . were continually involved in the purchase and development of each of the parcels. Each was once part of a larger whole and were developed at least in part by Plaintiffs."[82]

Penn Central Balancing Test Articulated Within the *Florida Rock V* Format

How does one determine that a taking occurred under the *Penn Central* balancing test? The economic components of the decision are well articulated in *Florida Rock V*, which embeds prior findings from other cases. In *K&K*, a fact-specific inquiry shows that a taking occurred because:

> (1) The landowner' property lost 67% to 86% of the value of the relevant parcel, depending on the relevant parcel. (Figure 1.)
> (2) Returns would have recouped investments with

78. 542 N.W.2d 282 (Mich. Ct. App. 1995).

79. 719 A.2d 19, 27 (Pa. Commw. Ct. 1998). Pennsylvania Supreme Court adopted the *Loveladies* "flexible approach" to the horizontal definition of relevant property for the denominator and "remanded to the Commonwealth Court for it to [uncover]the relevant facts and identif[y] the appropriate horizontal conceptualization of property to use in both the Lucas and Penn Central analyses." (Machipongo Land & Coal Co. v. Commonwealth, 799 A.2d 751, 769 (Pa. 2002). Case was also remanded for Penn Central analysis. *Id.* at 771.

80. *Volkema*, 542 N.W.2d at 74.

81. *See* Eagle, *supra* note 72, §11-7(e), 813.

82. K&K Constr., Inc. v. Michigan Dep't of Envtl. Quality, No. 88-012120-CM, slip op. at 4 (Mich. Ct. Cl. May 28, 2002).

development of Parcel 1; but Parcel 1 did not recoup investment, regardless of whether the relevant parcel includes Parcel 3. (Figure 5 and Table 1.)

(3) No reasonable return on the investment is possible without Parcel 1, regardless of inclusion of Parcel 3 in the relevant parcel. (Table 2.)

(4) No obvious reciprocity of advantage is revealed by the economic results of the sale of Parcels 2, 3, or 4.

(5) Like Florida Rock Industries, "[P]laintiff has been made the unwilling custodian of the wetlands on his property for the benefit of the public . . . , at plaintiff's risk and expense."[83]

Judge Smith wrote in *Florida Rock V*: "The government . . . cannot take from a property owner the core economic value of the property, leaving the owner with a mere shell of shambled expectations."[84] The analysis shows that Parcel 1 was the "core economic value" of the landowners' property. The *K&K* trial court found that:

> [T]he regulations . . . deprived the Plaintiffs of the entire economic value of parcel one, which is approximately two-thirds of the value of the entire denominator parcel. . . . There is no question from the facts . . . that Plaintiffs have always intended to develop parcel one. . . . The record showed an investment of several millions of dollars and the loss of a huge commercial development on parcel one. Applying the law to these facts demonstrates that the loss of parcel one far overshadows parcel two and three in area and in value. . . . [A]pplying the test as required to the entire parcel . . . shows a taking.[85]

Damages Must Encourage Efficient Land Use Regulations

The Michigan Supreme Court's remand in *K&K* did not disturb the original valuation of Parcel 1, $5.94 million, which was awarded as damages by the trial court. To keep the plaintiff whole, the appropriate time value of money must be determined. Interest under Michigan law runs from the date of regulatory taking, which in *K&K* was November 3, 1988.[86] Statutory interest operates as a floor and not a ceiling as a guide to judicial judgment.[87] The trial court has discretion in determining an interest rate that results in just compensation for the lost opportunity. The standard requires the property owner to be "put in as good a position pecuniarily as he would have been if his property had not been taken."[88]

To achieve this standard, the plaintiff's 1988 damages must be brought forward to date of payment at his nominal opportunity costs of money. Inflating the calculated damages at some lower court-sanctioned interest rate results in a windfall loss to the plaintiff and promotes inefficient land use regulations by the defendant.

Expert testimony in *K&K* shows that inflating the damages at between 12% and 20% would achieve equity and efficiency. Interest at the statutory Michigan rate, which varies through time, totals $8,255,827 computed to September 1, 2001. This rate is below the plaintiff's stated nominal expected return of 12%. Interest at the Michigan statutory rate will not compensate for the lost opportunity of operating the C.J. Barrymore complex. The plaintiff's economic expert testified that had the plaintiff invested in comparable REITs, the return would have averaged 14% to 16%. At 15%, interest totals $27,557,837. The plaintiff's appraisal expert testified that reasonable real estate returns in the local market ranged between 15% to 20%. At 17.5%, interest totals $37,983,860. Plaintiffs' brief sought 14.83% interest as the simple average of multiple expert opinions to compensate for the lost opportunity. Defendant council was unable to refute this because it offered no evidence or testimony to the court on reasonable expected returns in Oakland County, Michigan. The trial court awarded interest at the variable statutory rates from the bench July 3, 2002, because the statutory rate seems "imminently fair . . . . I would love to earn [the statutory rate of] interest on my own investments [in the 2002 market.]"[89]

Conclusion

The *K&K* experience demonstrates that the struggle to find clear benchmarks that reveal when compensation should be paid for regulatory interference with uses of private property can be illuminated with standard financial analysis.[90] The analysis is more complex than *before* and *after* appraisals. Financial tools to reveal frustration of investment-backed expectations produce clear results in the hands of trained legal and economic analysts. The distinction between the denial of *all productive use*, which is the facial requirement to surmount the *Lucas* test, and frustration of investment-backed expectations, which is the governing factor of the *Penn Central* test, reveals that some value remaining does not undermine the decision to pay compensation for a partial takings.

The decision to award compensation for a regulatory taking under the *Penn Central* test hinges on economic viability, not the mere existence of value remaining. Some value remaining vitiates the *Lucas* standard, but not the *Penn Central* benchmark. Judge William H. Collette's *K&K* decision in the Michigan Court of Claims determined that even substantial value remaining in the whole parcel did not "overshadow the economic impact of the overall losses to Plaintiff"[91] caused by foreclosing the specific development opportunity. *Palazzolo*'s clear rejection of the positive notice rule begs for reasonable expectations to be understood in terms of economic returns on a business person's investment. This will restore the clarity Professor Michelman had

83. *Florida Rock V*, 45 Fed. Cl. at 43.
84. *Id.* at 41 (citing Hendler v. United States, 952 F.2d 1364, 1373, 22 ELR 20646, 20650 (Fed. Cir. 1991)).
85. *K&K Constr.*, slip op. at 6-7.
86. Miller Bros. v. Michigan Dep't of Natural Resources, 513 N.W.2d 217 (Mich. Ct. App. 1994).
87. United States v. Blankinship, 543 F.2d 1272 (9th Cir. 1976); United States v. Thayer-West Point Hotel Co., 329 U.S. 585 (1947).
88. Seaboard Air Line Railway v. United States, 261 U.S. 299, 304 (1923).
89. Transcript at 7, K&K Constr., Inc. v. Michigan Dep't of Envtl. Quality, No. 88-012120-CM (Mich. Ct. Cl. July 3, 2002). Judge Collette misplaced adequacy of returns to his own portfolio in 2002 with returns to higher risk real estate investments over a longer period of time.
90. Judge Collette stated: "I read [economic expert's] deposition. I used it and I found it of significant value to the Court in determining whether or not there was a taking in this case." *Id.* at 15.
91. K&K Constr., Inc. v. Michigan Dep't of Envtl. Quality, No. 88-012120-CM, slip op. at 4 (Mich. Ct. Cl. May 28, 2002).

in mind for when to compensate property owners for regulatory prohibitions.

The plaintiff's banker testified in *K&K* that the foreclosed opportunity was the economic heart of the land developments. Years later and after a remand from the Michigan Supreme Court, what was obvious to the banker has been validated by the Michigan Court of Claims. But the plaintiffs missed the use of their money for 24 years. The Supreme Court's desire for a clear standard to know a regulatory taking when you see it needs to be promoted from footnote status in *Tahoe-Sierra* to the heart of takings law.[92] What is obvious to a banker should find a way to become more easily recognized by the courts. More reliance on sophisticated financial tools and methods provide the rigor to reveal when the regulatory interference goes "too far."

92. Tahoe-Sierra Preservation Council, Inc. v. Tahoe Reg'l Planning Agency, 122 S. Ct. 1465, 1478 n.17, 32 ELR 20627, 20630 n.17 (2002).