WHY BUSINESS METHOD PATENTS?

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INTRODUCTION

The past dozen years have witnessed an extraordinary and at times pitched controversy over the fundamental legitimacy of so-called "business method patents"—i.e., patents in which the inventor's contribution is directed toward improving processes in fields of business such as finance, credit, insurance, marketing, sales, management and the like.[1] The controversy has spilled out across

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[1] It is true that the category of "business method" patents cannot be defined with clarity. See State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1376 n.13 (Fed. Cir. 1998) (noting that "[a]ny Any historical distinctions between a method of ``doing'' business and the means of carrying it out blur in the complexity of modern business systems"). All attempts to categorize of inventions are subject to a significant degree of imprecision especially since, over time, the process of innovation tends to render obsolete previously established industrial categories. Such imprecision does not preclude categorization, and indeed, the Patent and Trademark Office (PTO) has long maintained an extensive system for classifying inventions to categories. See http://www.uspto.gov/web/patents/classification/textmenu.htm (setting for the PTO's classification system with links to definitions of each class). The PTO has defined a class of patents, class 705 ("Data processing: financial, business practice, management, or cost/price

hundreds of pages of law review articles, amicus briefs and fractured and conflicting judicial opinions. In the past year, the controversy finally came to the Supreme Court and, on the very last day of its Term, the Court issued closely divided 5-to-4 decision in *Bilski v. Kappos*[2] that definitely established business methods to be patentable. Still the Supreme Court's *Bilski* decision was not a complete victory for business method patents. The Court held all of the specific claimed inventions in the case to be outside the scope of patentable subject matter, and the Court explicitly stated that its interpretation of the Patent Act might "not suggest broad patentability" for business method patents.[3]

The Supreme Court's decision in *Bilski* seems unlikely to end all controversy over business method patents. Rather, the debate over business method patents will now turn from the question *whether any* business methods are patentable to the question *how broad* the scope of patentable subject matter should be for business methods. As the debate shifts in the wake of the Court's *Bilski* decision, it is an especially good time to ask a basic and important question that has not been thoroughly examined or satisfactorily answered: Why? Why did the controversy over the patentability of business methods arise at this particular time in our history, and why did the legal system ultimately accept the patentability of such methods? In short, why did business patents arise, and why did they survive? Each half of this question is not easy to answer, but good, thorough answers are urgently needed if legal decisionmakers and scholars are to appreciate the forces that have so far created and shaped the controversy, and that are likely to control its continuing course in the future.

This Article seeks those answers and finds that the complete story underlying the "why" of business method patents requires a not only an understanding of the legal doctrines, case law and jurisprudential trends that have shaped patentable subject matter in the last three decades, but also a deep appreciation of the larger commercial, technological and industrial circumstances that gave rise to the controversy. A comprehensive account of business method patents provides insights into the directions that the doctrines of patentable subject matter may take in the coming years, but it is also an extraordinary rich case study in legal method, for it shows how law develops in a complex regulatory area that is influenced by a broad set of forces arising both inside and outside the legal system.

Patents and business have existed in the United States since the inception of the country, and so, at least at first glance, there does not appear to be an obvious catalyst to explain the timing of the controversy—i.e., why business me-

determination"), which scholars generally consider to encompass most business method patents. See, e.g., John R. Allison and Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 Berkeley Tech. L.J. 729, 734 (2006)(noting that "[t]he greatest single concentration of business method patents is indeed found in class 705").

2. 130 S.Ct. 3218 (2010)

3. Id. at 3229.

thod patents, with their attendant controversy, arose in the last dozen years. Critics of business method patents have, however, put forward one thesis. They assign responsibility for the controversy to the judges of the Federal Circuit, who first recognized the patentability of business methods in the 1998 decision *State Street Bank & Trust Co. v. Signature Financial Group, Inc.,* in which the Federal Circuit had sustained the patentability of a computerized system for managing a financial portfolio in an innovative manner.[4] In its most extreme form, this thesis could be accurately labeled "the activist court hypothesis." The theory is that biased and activist judges of the newly created specialized court for patent law sought to expand their specialty by overturning long settled law that had barred the patentability of business methods. That view is well presented by Professor Peter Menell, who argues that "the unification of appellate decision making in a single body had the effect of creating a strong pro-patent bias in the interpretation of patent law."[5] As one of the "more notable" examples of such bias, Menell cites to the "Federal Circuit's 1998 State Street Bank case [which] 'laid to rest' the traditional rule barring patents on business methods."[6] Similarly, Professor Leo Raskind describes the *State Street* decision as "so sweeping a departure from precedent as to invite a search for its justification."[7] Such excerpts are not isolated. In academic articles, judicial opinions, political white papers, and other writings, the analysis of business method patents almost invariably traces the origins of the controversy to the *State Street* case, with the implication that credit or blame for business method patents should be fixed there.

The thesis has been influential. It has also entered the political arena, as shown by a report issued by the Computer and Communications Industry Association (CCIA), a Washington, D.C. trade association that accused the Federal Circuit of being an "activist court" that "summarily eliminated the judicial rule against business method patents" as a means of expanding the domain of the patent system by "judicial fiat."[8] And the view has even found its way into the judiciary. For example, in his dissent from the en banc decision that the Su-

4. 149 F.3d 1368, 1376 (Fed. Cir. 1998) (holding that "business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method").

5. Peter S. Menell, *The Property Rights Movement's Embrace of Intellectual Property: True Love or Doomed Relationship?*, 34 ECOLOGY L.Q. 713, 732 (2007).

6. *Id*.

7. Leo J. Raskind, *The State Street Bank Decision: The Bad Business of Unlimited Patent Protection for Methods of Doing Business*, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 61, 61 (1999).

8. Brian Kahin, Patent Reform for a Digital Economy 21-22 (Computer & Communications Industry Association 2006, White Paper), *available at* http://www.ccianet.org/CCIA/files/

ccLibraryFiles/Filename/000000000081/CCIA_WP_PatReformDigEcon.pdf. As this white paper notes, the CCIA "work[s] with [its] members to further their goals in the legislative and regulatory arenas." *Id*. at 1.

preme Court reviewed in *Bilski v. Kappos*, Judge Mayer colorfully describes *State Street* as representing a judicial "decision to jettison the prohibition against patenting methods of doing business [that] contravenes congressional intent;" that "launched a legal tsunami, inundating the patent office with applications seeking protection for common business practices"; that led to the patenting of "the somewhat ridiculous to the truly absurd"; and that has "generated a thundering chorus of criticism."[9]

Superficially, the activist court thesis appears to be supported even by the sheer fame of the *State Street* decision. In the years since it was decided, *State Street* has risen to a level of notoriety seldom achieved by panel decisions from the Courts of Appeals, with Shephard's Citations now showing the case cited over 1200 times in other judicial opinions and, predominantly, in academic articles in the legal field.[10] It is not hyperbole to say that the case has generated a whole vein of academic literature. The decision has gained even international renown, as it has been repeatedly cited, sometimes favorably sometimes not, in multiple foreign jurisdictions.[11] It thus natural to view the *State Street* decision as a species of judicial activism in the sense that it appears to be a new and dramatic change in legal doctrine that is precipitated purely by judicial decision.[12]

Part I of this Article critically examines the "judicial activism" thesis and finds historical evidence to support it wanting. Long before the Federal Circuit rendered its *State Street* decision, the Patent and Trademark Office (PTO) decided to issue patents like the one at issue in *State Street*, and two years prior to the *State Street* decision, the agency decided to drop from its Manual of Patent

9. *Bilski*, 545 F.3d at 1000-01, 1004 (Mayer, J., dissenting).

10. Shephard's Citations ™ now shows 1,218 references to the *State Street* decision. Shephard's counts citations in law reviews and other legal publications but does not count citations in non-legal journals such as economic and business journals.

11. See, e.g., Controlling Pension Benefit Systems/PBS Partnership, T 0931/95 -3.5.1, slip op. at 7 (EPO Bd. of Appeals Sept. 8, 2000) (available at http://legal.european-patent-office.org/dg3/pdf/

t950931eu1.pdf) (rejecting the patent applicant's suggestion that the European Patent Office follow *State Street*); Welcome Real-Time SA v. Catuity Inc., [2001] FCA 445, at ¶ 129 (Fed. Ct. of Australia) (*available at* http://www.austlii.edu.au/au/cases/cth/federal_ct/2001/445.html) (stating that "[t]he State Street decision is persuasive"); Aerotel Ltd v Telco Holdings Ltd, [2006] EWCA Civ 1371 (Eng. Ct. of App. 2006).

12 This is a common understanding of one species of judicial activism. See, e.g., Ernest A. Young, *Judicial Activism and Conservative Politics*, 73 U. Colo. L. Rev. 1139, 1205 (2002)(noting that, under one strain of conservative thought, "the worst kind of judicial activism is disregard for precedent").

Examining Procedure any reference to a "business method" exception to patentable subject matter. If credit or blame for business method patents were to be affixed to an actor in our legal system, the executive branch would be a far better candidate for pinning responsibility for the change.[13]

More importantly, however, any attempt to explain the rise in business method patents must take into account the enormously important developments that were occurring *outside the legal system*. As shown in part II of this Article, methods of business, finance and management underwent a tremendous transformation during the last quarter of the twentieth century as vastly better information technologies and empirical tools became available. Increasingly rigorous and mathematical approaches were deployed to address problems of economics and business, and scientific methods were generally extended into these fields. As economics and other "social sciences" came increasingly to resemble physical sciences, so too did their applied branches begin to resemble engineering. While the intellectual predicate for this transformation began as early as the 1950s, the practical revolution did not occur until the last two decades of the century. It was then that branches of business accelerated their ventures into the technological realm; that the line between a physicist and financier blurred; that employers on Wall Street began to seek out physicists and engineers; and that academic institutions began to develop not only wholly new literature, but also wholly new departments, dedicated to fields such as "financial engineering."

Unsurprisingly, as the practitioners of those transformed disciplines began to think of themselves as technologists and engineers—and indeed as these fields drew in people trained in traditional fields of science and engineering—the practitioners borrowed, or brought with them, the legal tools familiar in science and engineering, including patents. Indeed, the historical record is clear that parties sought business method patents *first*. Patents followed the progress of science and technology. The courts validated that development only *later*. Courts were therefore followers, not leaders, in building a new legal structure that tracked the development of new science and new applied science. A contrary view—that an activist judiciary or an activist legal system brought patents into a new field where they were unneeded, unwanted and unwelcome—can be maintained only by embracing a legal-centric view that is blinkered from some of the most important industrial developments of our age.

All of this, however, answers only part of the more general question that is the focus of this Article. It explains why business method patents arose, but not why they ultimately survived in the Supreme Court's *Bilski* decision. For this part of the question, both judicial activism and technological change seem especially poor answers. The Justices in the *Bilski* majority were the most conservative members of the Court, the ones most concerned about exercising

[13] See part I.B, infra.

judicial restraint. Moreover, all the *Bilski* opinions seem highly skeptical of business method patents. Even if one believed the conservative justices to be disingenuous in their professed commitments to judicial restraint, it is difficult to believe that they would break those commitments to vote in favor of a policy they do not necessarily favor in a field of law they do not know well. So too, technological change within business fields seems to be a poor explanation for the majority's votes in Bilski, for none of opinions issued by the Justices displays any recognition of the changes that have swept through business fields in the last quarter of the last century. Rather, as shown in part III below, business method patents owe their survival at the Supreme Court to the happenstance of specific legal constraints coupled with recent jurisprudential trends within the legal system.

The complete explanation for the arrival and ultimate survival of business method patents thus provides an excellent study in the relationship between the legal system and all that lies beyond it. The "judicial activism" explanation for business method patents fails in part because it ascribes far too much significance to a single Court of Appeals decision without considering the extraordinary developments taking place outside the legal system. But developments within the legal system also impose constraints on the possible paths in which the law can develop, and those constraints may be especially important in explaining individual administrative actions, judicial decisions, and even legislative enactments. An appreciation of all these forces is essential to explaining the past, and anticipating the future, of business method patents as well as patentable subject matter doctrine generally.

I. THE ACTIVIST COURT HYPOTHESIS AND ITS FLAWS

Members of the legal profession may be naturally predisposed to accepting the activist court hypothesis. The Federal Circuit was created in 1982 and given exclusive appellate jurisdiction over nearly all patent cases in the United States. The Federal Circuit thus became *the* patent court for the United States and a prime example of a specialized court. One feared attribute of specialized institutions—one much discussed in the legal literature—is that the institution may try to expand its power by expanding the domain of its specialty.

By the time of *State Street* in 1998, other evidence already existed to support the view that the Federal Circuit was more pro-patent than the regional circuits it had replaced. To be sure, the evidence was mixed. The Court developed a reputation of being more likely than its predecessors to sustain the validity of patents (and thus more pro-patent), but also more likely to construe a patent narrowly or hold it unenforceable due to procedural errors at the Patent and Trademark Office (PTO) (both of which not being pro-patent).[14] When *State*

14. *See* Glynn S. Lunney, Jr., *Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 S.Ct. Econ. Rev. 1, 2 (2004); John M. Golden, The Supreme

Street was handed down, however, the decision gave ammunition to those in the legal profession who believed the Federal Circuit to be following the expected pattern of a specialized court by aggrandizing its own domain. Indeed, a theory that the court was aggrandizing its own power was not at all inconsistent with the evidence that some Federal Circuit doctrines hurt inventors. Construing patents narrowly could mean merely that inventive companies needed to obtain *more* patents, and the Federal Circuit's unenforceability holdings tended to give the Federal Circuit greater control over the administrative procedure inside the PTO.

Superficially, the course of proceedings in the *State Street* itself lent some support to the theory that the Federal Circuit was aggrandizing the domain of the patent system (and thus the court's own domain) in an unprecedented and activist manner. After Signature Financial Group and State Street Bank failed to reach a licensing agreement for Signature's patent on a "Data Processing System for Hub and Spoke Financial Services Configuration,"[15] State Street brought suit seeking a declaratory judgment that the patent was invalid. In district court, things went well for State Street. While the basic statute governing the scope of patentable subject matter is written with very broad language that seemingly permits patents on "any new and useful process" or "method,"[16] the District Judge in *State Street* recognized that "a series of older cases" (though none from the Supreme Court) established the unpatentability of business methods and that this now "long-established principle" of unpatentability was widely recited in "numerous patent law treatises."[17] Based on this "business method exception" to the generally broad legal contours of patentable subject matter, the district court held the patent at issue in the case invalid on the grounds that it was a method of doing business.

The Federal Circuit reversed. Addressing the district court's reliance on a "'business method' exception" to patentable subject matter, the circuit court took "this opportunity to lay this ill-conceived exception to rest."[18] The prior cases cited by the district court did not actually establish a business method exception, the panel reasoned, because those cases had ultimately rested on other grounds, such as on the prohibition against patenting an "abstract idea" or on

Court As "Prime Percolator":A Prescription For Appellate Review Of Questions In Patent Law, 56 UCLA L. Rev. 657, 679 & n.125 (2009).

[15] U.S. Patent No. 5,193,056 (Mar. 9, 1993).

16. Section 101 of the Patent Act defines the scope of patentable subject matter by authorizing the issuance of patents on "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. The Act also expressly defines "process" to include "process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." 35 U.S.C. § 100(b).

17. State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 927 F. Supp. 502, 515 (D. Mass. 1996).

[18] 149 F.3d at 1375.

the "lack of novelty" of the invention.[19] The circuit court's reversal could easily have been seen as an example of judicial activism both because it superficially appeared to be a new departure from existing precedent (or at least a creative reinterpretation of precedent) and because that —a departure appeared to increase the power of patent judges by expanding the domain of the patent system.

Still even at this superficial level, one difficulty with the activist court hypothesis is already apparent: The judges of the Federal Circuit could be accused of activism only in the sense that they were departing from a prior *judicial* rule of unpatentability in favor of a more text-bound reading of the relevant *statute* written by Congress. While such a swerve from prior judicial precedent could be fairly said to be activism in some sense, the normal charge of judicial activism is usually not that judges are being too aggressive in abandoning judicial precedents in favor a more textually faithful reading of legislation. The unusual character of the judicial activism charge against the *State Street* court would prove highly significant when the Supreme Court ultimately addressed the issue of business method patents in *Bilski*. Yet in addition to the unusual nature of its claim about judicial activism, the activist court hypothesis suffered from several other serious flaws. More thorough analysis of the thesis reveal at least four distinct problems.

A. *The Patent in State Street was an Issued Patent*

Even the very caption of the case—*State Street Bank v. Signature Financial*—provides the first clue that something is terribly amiss with the activist court hypothesis. The case was an infringement action between two private entities over an *issued* patent. The PTO had granted the patent in 1993, based on an application filed in 1991.[20] Thus, at least by 1993, the agency had either believed that there was no business method exception or that any such exception was narrower than the district court believed it to be.

In fact, the PTO had already issued quite a few patents similar to the one in *State Street*, which was classified in the agency's subclass for applications involving "Finance (e.g., securities, commodities)" (subclass number 408) in the general class of "Electrical Computers and Data Processing Systems" (class number 364).[21] The PTO had already issued more than two dozen patents just

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[19] Id. at 1376.

20. See U.S. Patent No. 5,193,056 (issued Mar. 9, 1993).

21. PTO Manual of Classification for US Patents, *available at* http://www.ibiblio.org/patents/

class/CLASS364.html. Under the then-existing classification units, subclass 408 for financial inventions was actually a "second subclass" of the more general "first subclass" 401, which covered inventions relating to "Business practice and management." See *id*. (setting forth then-existing classification system); *see also* Overview of the U.S. Patent Classification System (USPCS) I-8–I-9, *available at*

in that subclass, including patents for financial and management inventions such as a "Securities Valuation System,"[22] a "Securities Brokerage-Cash Management System"[23] and a "Pension Benefits System."[24] Thus, for more than a decade prior to *State Street*, inventors and their companies had been seeking, and the PTO throughout several different political administrations had been issuing, patents that covered advances in business technology.

B. *The Executive Branch Moved First in Eliminating Its "Business Method" Exception*

If abolishing the supposed "business method" exception to patentability was a significant expansion of patent law, then it is important to recognize which branch of government took that leap first. It was not the courts and an activist judiciary. It was the executive branch.

Prior to 1995, the PTO had long endorsed the view that at least some business methods were outside the scope of patentable subject matter. Indeed, a half century before *State Street*, the agency's first edition of its Manual of Patent Examining Procedure (MPEP) listed "a method of doing business" as one of only four exceptions to patentable subject matter:

> Method of Doing Business
> Though seemingly within the category of an "art" or method, the law is settled by the method of doing business can be rejected as not being within the statutory classes [of patentable subject matter]. Hotel Security Checking Co. v. Lorraine Co., 160 F. 467.[25]

Yet even that early endorsement of the business method exception revealed three signs of weakness. First, although claiming the law to be "settled," the agency cited as authority for the exception only a single lower court decision from the Second Circuit, Hotel Security Checking Co. v. Lorraine Co.[26] Yet

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http://www.uspto.gov/web/offices/opc/documents/overview.pdf (explaining the PTO's elaborate hierarchy of subclasses). The PTO has since revised its classification system so that the patent at issue in *State Street* is now categorized by the PTO in second subclass 36.R ("Portfolio selection, planning or analysis") within the first subclass 35 ("Finance (e.g., banking, investment or credit)") in the general class 705 covering "Data Processing: Financial, Business Practice, Management, or Cost/Price Determination." U.S. Patent and Trademark Office, http://uspto.gov/go/classification/uspc705/sched705.htm; *see also* U.S. Patent and Trademark Office http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2
=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=5193056.PN.&OS=PN/5193056&RS=PN/5193056 (displaying USPTO's current electronic file for the patent at issue in *State Street*, shows its current classification to be 705/36R).

22. U.S. Patent No. 4,566,066 (filed June 4, 1982) (issued Jan. 21, 1986).

23. U.S. Patent No. 4,376,978 (filed Oct. 22, 1980) (issued Mar. 15, 1983).

24. U.S. Patent No. 4,750,121 (filed Oct. 3, 1985) (issued June 7, 1988).

25. Manual of Patent Examining Procedure § 706.03(a) (1st ed. 1949), *available at* http://www.uspto.gov/web/offices/pac/mpep/old/E1R0_700.pdf.

26. 160 F. 467 (2d Cir. 1908).

the *Hotel Security Checking* decision actually interpreted the language of the statute broadly. The court recognized that, under the statute, the crucial issue was whether the claimed invention constituted a "new and useful art."[27] The court then noted that "[o]ne of the definitions given by Webster of the word 'art' is as follows: 'The employment of means to accomplish some desired end; the adaptation of things in the natural world to the uses of life; the application of knowledge or power to practical purposes.'"[28] *Hotel Checking* ultimately turned on the basic rule that "[i]n the sense of the patent law, an art is not a mere abstraction."[29] Of course, abstractions are not allowed to be patented in any field of endeavor, so the *Hotel Checking* opinion does not stand for any special restriction on business methods.

Beyond the agency's shaky support in the case law for any "settled" rule against patenting "methods of doing business," the agency's manual also pointed out a second and more fundamental weakness in any attempt to rule out business method patents: The category of "art" in the explicit statutory language "seemingly" covered methods of doing business. Thus, the agency itself recognized that the text of the statute tended to cut against a prohibition on business method patents.[30]

Third and finally, the MPEP's early discussion of business method patents did not state that all methods of doing business must necessarily be outside of patentable subject matter. Rather, the agency maintained merely that a method of doing business "*can* be rejected as not being within the statutory classes."[31]

The PTO's tepid support for the business method exception continued through 1995. In January of that year, the agency published the Sixth Edition of its MPEP, which used nearly the exact same discussion from the First Edition MPEP concerning a "method of doing business" as an exception to patentable subject matter.[32] However, in September of that same year, the agency dropped

27. *Id*. at 469 (quoting the patent statute then in force, section 4886 of the Revised Statutes).

28. *Id*.

29. *Id*.

30. The term "art" had long been construed to encompass any process or method. In 1952, Congress ratified that interpretation by amending the statutory list of patentable subject matter categories to include any "process," which was then defined to encompass an "art" or "method." 35 U.S.C. §§ 101 & 100(b) (1952). In the second edition of its MPEP, the Patent Office amended its statement about business method patents to reflect the new statutory language, and once again noted the conflict with the text of the statutory terms: "Though seemingly with the category of a process or method, the law is settled by the method of doing business can be rejected as not being within the statutory classes. Hotel Security Checking Co. v. Lorraine Co., 160 F. 467." MPEP § 706.03(a), at 61 (2nd ed. 1953).

31. MPEP § 706.03(a) (1st ed. 1949).

32. See MPEP § 706.03(a) (6th ed. 1995), *available at* http://www.uspto.gov/web/offices/pac/
mpep/old/E6R0_700.pdf.

its endorsement of the business method exception from the MPEP. [33] This was no small step. The MPEP is often called the "bible" of patent law because it is widely recognized as the primary means by which the PTO provides guidance not only to private patent attorneys, but also to the agency's own examining corps. [34] In light of the patents that the agency had already been issuing—patents like the one in *State Street*—the elimination of any mention to a business method limit on patenting was a major signal that the agency was beginning to conform its administrative instructions to a reality that was already occurring through the issuance of business method patents.

Subsequent actions by the PTO confirmed that the agency had acted deliberately in purging any mention of a business method exception from the MPEP. In its "Examination Guideline for Computer-Related Inventions" issued in Februrary of 1996, the PTO instructed that "[c]lains should not be categorized as methods of doing business," but "[i]nstead, such claims should be *treated like any other process claims*."[35] Soon after the Federal Circuit issued its *State Street* decision, the PTO issued an influential white paper that seemed in full agreement with the Federal Circuit's position in *State Street*. [36] That paper described the "business method claim format" as having been "used in various forms throughout" the twentieth century, and opined that the "increase in its use today is an inevitable end result of our progress over the last century."[37] In the PTO's view, the *State Street* decision did not change the law but merely "triggered an awareness of the 'business method claim' as a viable form of patent protection." [38]

In sum, the Federal Circuit cannot fairly be accused of leading an assault against the business method exception. Within the government, the administra-

33. MPEP § 706.03(a)(1) (6th ed., rev. 1 1995), *available at* http://www.uspto.gov/web/offices/
pac/mpep/old/E6R1_700.pdf.

34. *See* ROBERT C. FABER & JOHN L. LANDIS, LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING § 1:2, at 1–2 n.3 (5th ed. 2005) (noting that the MPEP "normally operates as the examiner's bible" and recommending that attorneys follow the Manual "to the letter except where one is convinced that the Manual is wrong and the client's interests are likely to be prejudiced"); *see also* Patent Publishing, LLC, http://www.patentpublishing.com/index.html (last visited Apr. 2, 2009) ("[T]he MPEP is the Patent Attorney or Agent's bible. Working without the current MPEP is like bringing a knife to a gunfight.").

35. *Examination Guidelines for Computer-Related Inventions*, 61 Fed. Reg. 7478 (1996) (emphasis added). The complete paragraph recognizes that the agency's personnel "have had difficulty in properly treating claims directed to methods of doing business." *Id*. The agency's decision to treat business methods claims like any other process claims appears to be the agency's solution to the difficulties associated with trying to maintain a separate business method category.

36. U.S. Patent and Trademark Office, A USPTO White Paper: Automated Financial or Management Data Processing Methods (Business Methods) (USPTO White Paper, July 2000), *available at* http://www.uspto.gov/web/menu/busmethp/whitepaper.doc.

37. *Id*. at iv.

38. *Id*.

tive agency was the more responsible party, with the Federal Circuit merely following the agency's lead.

C. *State Street Followed En Banc Precedent*

One of the most famous part of *State Street*—the part frequently quoted in connection with the charge of judicial activism—is the decision's articulation of the test for patentability, which stresses that a claimed invention should generally be considered as within patentable subject matter if it produces a "useful, concrete and tangible result."[39] The fame of that portion of the *State Street* decision can be seen in Justice Breyer's influential dissent in *LabCorp. v. Metabolite*,[40] where Breyer implied that the *State Street* court was departing from Supreme Court teachings. Responding to the patentee's reliance on *State Street* to support the patentability of the claimed invention at issue there, Justice Breyer acknowledged that *State Street* "does say that a process is patentable if it produces a 'useful, concrete, and tangible result.'"[41] But *this Court*," Justice Breyer emphasized, "has never made such a statement and, if taken literally, the statement would cover instances where this Court has held the contrary."[42]

While it is true that the *State Street* opinion did employ a test of patentable subject matter that turned in large part on whether the claimed invention produced a "useful, concrete, and tangible result," that was not an innovation of the *State Street* court. That test had been promulgated four years prior to *State Street* by the en banc Federal Circuit decision *In re Alappat*.[43] Noting the earlier provenance of *State Street*'s legal test may merely push back the charge of judicial activism. Perhaps all it means is that the critics of *State Street* should refocus their fire on an earlier decision, without abandoning the charge of activism.

Yet shifting the focus from *State Street* to *Alappat* does highlight the scope and complexity of the issue. The extent of patentable subject matter had been in flux for years prior to *State Street*, and that broader controversy had encompassed inventions from many fields of technology. *Alappat* itself dealt with technology for illuminating pixels on an oscilloscope screen. That sort of invention—which had nothing to do with business methods—was arguably outside the scope of patentable subject matter only because, as will be discussed below, the Supreme Court precedents on the subject had not been entirely clear, and long before *State Street,* the Federal Circuit had been struggling to define patentable subject matter in light of the Supreme Court's statements. *State*

39. *State Street,*149 F.3d at 1373.

40. Lab. Corp. of Am. Holding v. Metabolite Labs., Inc., 548 U.S. 124 (2006).

41. *LabCorp*, 548 U.S. at 137.

42. *Id*. at 136.

43. 33 F.3d 1526, 1544 (Fed. Cir. 1994) (creating and applying the "useful, concrete and tangible" test).

Street was not so much a break with the past, but part of a continuing struggle by a lower court to apply existing law to the particular facts of the case—hardly a hallmark of judicial activism.

One final note on this point: The Federal Circuit's en banc decision in *Bilski* has now held that the "'useful, concrete and tangible result' analysis" can no longer be considered good law.[44] Curiously, in rejecting that test, the Federal Circuit stated that it was rejecting part of *State Street* and a later panel decision, *AT&T Corp. v. Excel Communications, Inc.*[45] But the en banc court in *Bilski* was in fact rejecting part of the analysis from the court's last en banc decision concerning patentable subject matter, *In re Alappat*. The unique part of the decision in *State Street* was the panel's clear rejection of a business method exception, and all but one member of the *Bilski* court was willing to reaffirm that holding. Thus, the real force of the *State Street* decision survives at the Federal Circuit, though the Federal Circuit's en banc pronouncements in this doctrinal area show that they may not age well.

The progression from *Alappat* to *State Street* and then to *Bilski* does not necessarily provide a complete answer to the charge of judicial activism. Perhaps *Alappat*, *State Street*, and *Bilski* are all judicially active. But once *State Street*'s holding on business method patents is placed in the context of prior and subsequent case law, any simple judicial activism theory begins to yield to the nuances and complexities in this doctrinal area. Even a passing familiarity with the Supreme Court cases in this area reveals the extent of the complexity.

D. *The Supreme Court's Case Law on Patentable Subject Matter.*

Prior to *Bilski, a*t least two opinions by Supreme Court Justices (though not majority opinions) seem overtly critical of either business method patents or the *State Street* decision. In the 2006 Supreme Court case *eBay Inc. v. MercExchange, L.L.C.,* Justice Kennedy (joined by three other Justices) mentioned "the burgeoning number of patents over business methods" having "suspect validity" as one example where "the nature of the patent being enforced and the economic function of the patent holder present considerations quite unlike earlier cases."[46] Earlier that same year, Justice Breyer (joined by two other Justices) was even more forceful in criticizing lower court precedent on business method patents. As noted above, he derided *State Street*'s "useful, concrete and tangible" test with the comment that "this Court has never made such a statement."

Justice Breyer is, of course, absolutely correct that the Supreme Court has never defined patentable subject matter with a "useful, concrete and tangible" test. Instead, in its last three cases concerning patentable subject matter, the Court has said: "Congress intended statutory subject matter to 'include any-

44. In re Bilski, 545 F.3d 943, 960 n.19 (Fed. Cir. 2008).

45. AT&T Corp. v. Excel Commc'ns, 172 F.3d 1352, 1361 (Fed. Cir. 1998).

46. 547 U.S. 388, 396–97 (2006) (Kennedy, A. dissenting).

thing under the sun that is made by man.'"[47] "In choosing such expansive terms [in section 101 of the statute] . . . modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope."[48] "Courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.'"[49] And finally in its most recent decision concerning patentable subject matter (which was decided a few years after *State Street*), the Supreme Court reiterated that "the language of § 101 is extremely broad."[50] Each of the three Supreme Court cases sustained the patentability of the invention at issue. In light of those holdings, and language used by the Court in reaching those holdings, a responsible lower court might have reasonably thought that the scope of patentable subject matter was not so narrow, and that it might be wrong to read into the statute a per se rule against business method patents that neither the Congress nor the Court had ever endorsed.

True, the Supreme Court has recognized that, despite the "extremely broad" language of statutory law, patentable subject matter has its limits. Yet the limits recognized by the Court do not seem particularly well adapted to barring business method patents. For example, the Supreme Court held that natural phenomena and principles of nature are unpatentable, and that business methods seem quite removed from the natural world. The Court has also stated that abstractions are unpatentable, but at least some business methods cover very definite inventions. For example, the patent in *State Street* itself did not seem particularly abstract.

Other business method patents are similar. A good example is provided by a recent patent issued in 2008 to a group of inventors including two Harvard Business School professors, Paul Gompers and Josh Lerner.[51] The patent covers a method for valuing "private equity investments," and it sets forth a very detailed, specific and well-defined economic method for placing a value on certain kinds of assets. Whatever else can be said about such a patented invention, it seems more closely akin to an engineering solution than to something that could fairly be called "abstract." Such a patent is, of course, vulnerable to the charge that it fits within the field of business, especially since its inventors are experts in precisely that field. Yet that consideration—that the invention measures economic value rather than, say, mineral properties—seems as if it should be governed by the Supreme Court admonition that "courts 'should not read into the patent laws limitations and conditions which the legislature has not ex-

47. Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980).

48. *Id*. at 308.

49. Diamond v. Diehr, 450 U.S. 175 (1981) (quoting *Diamond v. Chakrabarty*, 477 U.S. 303, 308 (1980)).

50. J.E.M. Ag. Supply, Inc. v. Pioneer Hi-Bred Int'l., Inc., 534 U.S. 124, 130 (2001).

51. U.S. Patent No. 7,426,488 (issued Sept. 16, 2008). This patent was issued *after* the PTO adopted, and began enforcing, its machine-or-transformation test. Thus, presumably, the agency believes that this patent is valid even under the agency's position in *Bilski*.

pressed.'"[52]

II. AN ALTERNATIVE THESIS: LAW FOLLOWED TECHNOLOGY

Rather than activist lower court judges—or even an activist administrative agency—a better explanation for the rise business method patents in the late twentieth century lies in developments outside of legal institutions: Economics, business, finance and similar fields began to develop into much more technological disciplines during the last quarter of the twentieth century, and that transition was the catalyst for the burgeoning number of business method patents. Several objective features of the historical record demonstrate that this transition clearly predated *State Street* by years. The legal events of the late 1990s, including the agency's abandonment of a business-method exception in 1995 and *State Street*'s ratification of that move in 1998, cannot be appreciated without an understanding of these important developments that were occurring in the academic, industrial and technological practices of business.

The intellectual precursors of the movement toward a technological approach to business date back at least to the middle of the twentieth century. For example, in 1954, an article in the second edition of the *Journal of the Operations Research Society of America* surveyed the then-current state of "operations research" as a field and concluded that "operations research has origins common with modern science"; that it "is, in effect, the transfer of such logically developed structures from their original field of use to business problems"; and that "[o]perations research is, therefore, but a logical evolution rather than a radical innovation." [53] At about the same time, economists also began noticing an evolution of multiple new fields that combined economics and the practices and techniques of engineering. In 1959, Professor Herbert Simon of the Carnegie Institute of Technology noted:

> Normative microeconomics, carried forward under such labels as "management science," "engineering economics," and "operations research," is now a flourishing area of work having an uneasy and ill-defined relation with the profession of economics, traditionally defined. Much of the work is being done by mathematicians, statisticians, engineers, and physical scientists (although many mathematical economists have also been active in it).[54]

Thus, as early as the mid-twentieth century, engineers and physical scientists were already migrating into the academic realms of business, economics and management.

By the 1980s, the migration of hard science into the practical disciplines of

52. *Diehr*, 450 U.S. at 182 (quoting *Diamond v. Chakrabarty*, 477 U.S. 303, 308 (1980)).

53. M.L. Hurni, *Observations on Operations Research*, J. OPERATIONS RES. SOC. AM. 234, 235, 244 (1954).

54. Herbert A. Simon, *Theories of Decision-Making in Economics and Behavioral Science*, 49 AM. ECON. REV. 253, 254 (1959).

business and finance accelerated. In 1981, the New York Times reported that American Express was naming an "Ex-Physicist" to head a newly created group on consumer financial services.[55] By mid-decade, the employment of scientific talent was a commonplace on Wall Street. As another New York Times article described the phenomenon, "[t]he Street's newest professionals are the "rocket scientists" and "'quants"—oftentimes former academics in the pure sciences of mathematics and physics—who search for new ways to apply the computer to all sorts of problems: creating mortgage-backed securities, minimizing transaction costs, timing the sale of huge volumes of stock to maximize profits."[56] By the time of the mini-crash of 1987, it was well known that Wall Street had already turned to hiring "mathematicians and physicists" to become the "rocket scientists" of the financial industry:

> Since these "derivative products" became popular a half-dozen years ago, brokerage houses have recruited mathematicians and physicists to join their ranks. These so-called "rocket scientists" have devised intricate formulas and complex trading programs that measure both the market value of certain stocks and of futures on those stocks, and then rapidly execute trades when the market values are out of sync.[57]

The recent 2008-09 upheaval in the financial markets has not decreased Wall Street's appetite for financial "quants" and financial engineering. To the contrary, Professor Andrew Lo, the Director of MIT's Laboratory for Financial Engineering, has stated that "[t]he recent debacle has only increased the hunger for scientists on Wall Street," and that [t]he problem is not that there are too many physicists on Wall Street, … but that there are not enough."[58]

The "quant"-ification of Wall Street's workforce was not the only dramatic trend that began in the 1980s. The academic literature also showed a dramatic change in how commentators and theorists conceived one of the core fields of research—finance. The two figures below give the number of articles per year that used the term "financial engineering" in academic literature from the fields of finance, economics, business, political science and statistics.[59] The term was almost unknown in the literature until the 1980s. Indeed, though the graph shows an occasional reference to the term "financial engineering" prior to the

55. *Ex-Physicist to Head American Express Unit*, N.Y. TIMES, Aug. 27, 1981, at D2.

56. David Sanger, *Wall Street's Tomorrow Machine*, N.Y. TIMES, Oct. 19, 1986.

57. Winston Williams, *The Big Board Battle to Contain the Damage*, N.Y. TIMES, Oct. 25, 1987.

58. Dennis Overbye, *They Tried to Outsmart Wall Street,* N.Y. TIMES, March 10, 2009, at D1 (attributing these views to Professor Lo).

59. The literature searched for Figures 1 and 2 include all journals available through the electronic library JSTOR, which is an electronic archive that includes "scholarship published in over one thousand of the highest-quality academic journals across the humanities, social sciences, and sciences, as well as monographs and other materials valuable for academic work." http://www.jstor.org/page/info/about/organization/missionHistory.jsp. The JSTOR service allow searches to be made in specific areas, and the searches here were limited to JSTOR's categories of finance, economics, business, political science and statistics.

1980s (never more than one or two in a single year, and never more than five in a decade), a check of those references frequently shows that the references are "false positives": rather than using the term "financial engineering," the articles merely happen to mention "financial" immediately before "engineering" in a list of considerations.[60]

60. *See, e.g.*, Henry T. Hunt, *The Creation of Employment by the Federal Government*, 176 ANNALS OF THE AM. ACADEMY OF POL. AND SOC. SCI. 95, 95 (1934) (noting that certain applications for government financing included "financial, engineering, and … legal information").

FIGURE 1
Number of Articles Per Year Using the Term "Financial Engineering" in the Academic Literature from the Fields of Finance, Economics, Business, Political Science and Statistics, 1920-2005, with Five Year Average Trendline

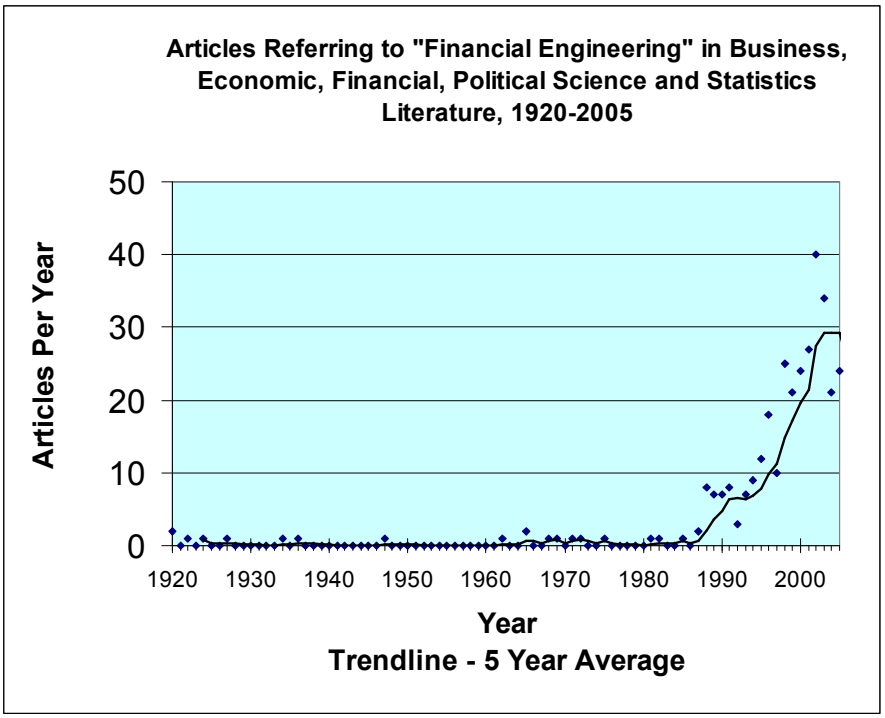
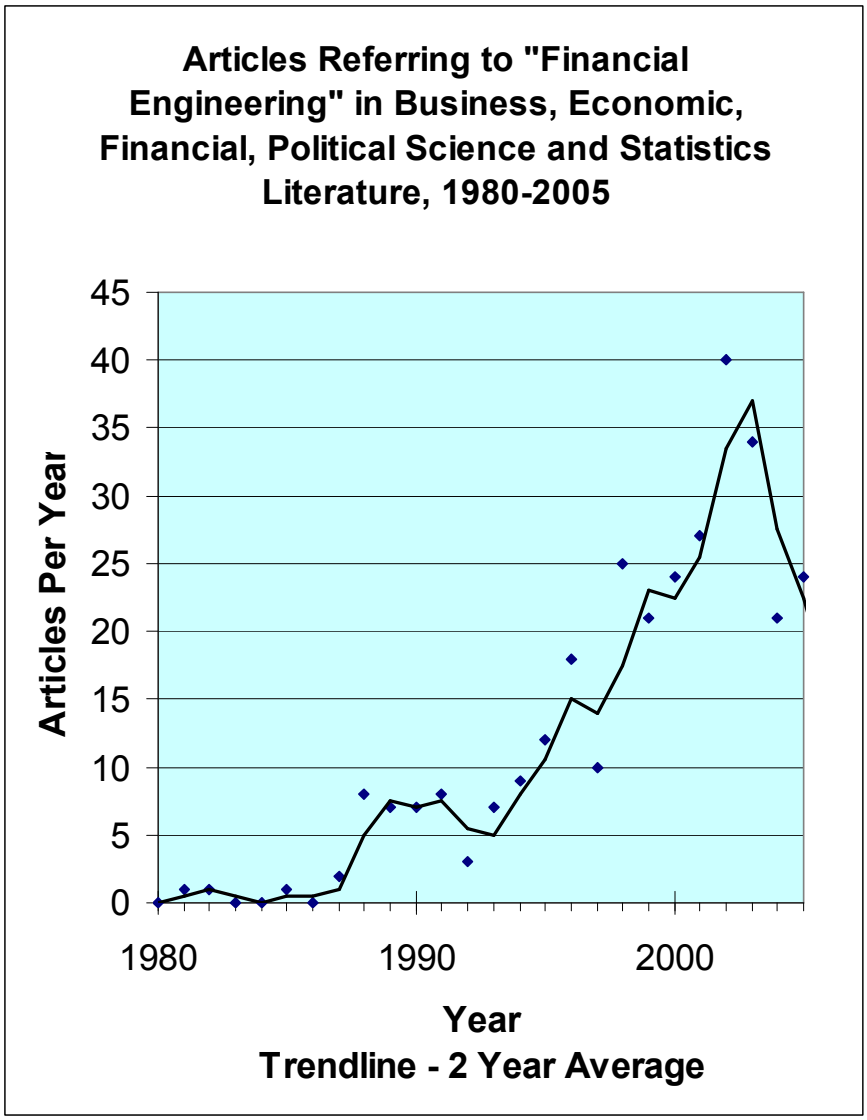


FIGURE 2

Number of Articles Per Year Using the Term "Financial Engineering" in the Academic Literature from the Fields of Finance, Economics, Business, Political Science and Statistics, 1980-2005, with Two Year Average Trendline



Beginning in the late 1980s, however, a significant change occurs, the academic literature begins to employ the term "financial engineering" to describe the heavily mathematical, quantitative forms of finance that were becoming in-

creasing common in that era. A watershed event in the shift occurred in 1987, when the journal *Financial Management* announced that it would hold a conference the next year on "Financial Engineering in Corporate Finance: Analysis and Applications."[61] The journal defined "financial engineering" to mean "the design, development, and implementation of nontrivial, new approaches to solve problems in finance," and recognized that financial engineering "represents the innovative component of financial applications."[62] Moreover, in identifying why the "engineering" of finance was becoming more important, the journal emphasized the advances in "tools" and "technical know-how": "Because of better tools (options, futures. . .), catalysts (more sophisticated corporate financial officers and investment bankers), and technical know-how (advances in financial theories), 'Financial Engineering' is making a much greater impact on the practice of corporate finance than ever."[63]

The journal's conference issue on financial engineering was published in 1988, and that single issue accounts for six of the eight articles that discussed "financial engineering" that year. The first article in that issue also recognized the "financial engineering" to be centered around innovation: "Financial engineering involves the design, the development, and the implementation of *innovative* financial instruments and processes, and the formulation of creative solutions to problems in finance."[64] The article even recognized that "innovative" solutions are properly defined to include only solutions that are "non-trivial," a point that has a close kinship to the patent law policy of barring patents on obvious developments.[65] As Figure 2 indicates, the term "financial engineering" stuck, and within a few years many other journals were publishing articles on the new field. The number of articles per year on "financial engineering" has continued rise since that time at a relatively steady pace.[66]

A final indicator of this transformation can be observed in university programs, especially the programs at top engineering and technical schools. Since the 1980s, numerous universities have created courses, programs, laboratories, and even whole departments dedicated to the study of topics like "financial en-

61. *See A Special Issue on "Financial Engineering in Corporate Finance: Analysis and Applications*," 16 FINANCIAL MANAGEMENT 6 (Winter 1987).

62. *Id*.

63. *Id*.

64. John D. Finnerty, *Financial Engineering in Corporate Finance: An Overview,* 17 FINANCIAL MANAGEMENT 14, 14 (Winter 1988).

65. *Id*.

66. The downward trend for the last two years, 2004 and 2005, probably reflects JSTOR's limited coverage for articles less than 10 years old. JSTOR employs different "moving walls" for each journal in the archive, with each "moving wall" "defin[ing] the time lag between the most current issue published and the content available in JSTOR. The majority of journals in the archive have moving walls of between 3 and 5 years, but publishers may elect walls anywhere from zero to 10 years." *See* http://www.jstor.org/page/info/about/archives/journals/

movingWall.jsp.

gineering." A good example is Princeton University, which has created the "Department of Operations Research & Financial Engineering" as a center for the study of "engineering for business, commerce, and industry."[67] Princeton, like other schools offering studies in this specialized field, has placed this department in its engineering school (specifically its School of Engineering and Applied Science). The University surely did not take this action to try to influence the course of patent law. It arranged its departments according to the similarity between modern business and finance studies and traditional engineering programs.

Princeton's program on financial engineering is not unique. As shown in Appendix 1 below, 8 of the top 10 and 14 of the top 20 engineering universities in the nation have degrees, programs, concentrations or laboratories directed toward "financial engineering," or as it is less commonly called, "quantitative finance" or "financial mathematics." The programs tend to be interdisciplinary, with the locus of the program often (though not always) in the university's business school, but with participation from other university departments in engineering, mathematics, and statistics. Even the schools that lack a specific program in "financial engineering" have courses that cover the subject. For example, Harvard University has no program directed specifically to financial engineering but does teach "Corporate Financial Engineering" as a course in its business school.[68]

Among the top-20 engineering schools, the rise of financial engineering degree programs, laboratories and concentrations occurred between 1990 and the present. The establishment of these programs is therefore a relatively recent change. Such changes in the underlying industry are far better candidates than the *State Street* decision or other legal developments to explain the rise in applications for business method patents.

III. BILSKI V. KAPPOS: THE FATE OF BUSINESS METHOD PATENTS

The controversy surrounding business method patents reached the Supreme Court in the case of Bilski v. Kappos. Though technically the case presented the courts with the fairly narrow issue whether the word "process" in § 101 of the Patent Act was limited in its meaning by the so-called "machine-or-transformation" test, the case was destined to become a vehicle for testing the legitimacy of patenting any business methods.

In 1997, one year prior to the Federal Circuit's *State Street* decision, Bernard Bilski and Rand Warsaw applied for a patent on a method of hedging risk

67. Princeton University, *Operations Research & Financial Engineering*, http://orfe.princeton.edu (last visited Mar. 30, 2009).

68. *See* Harvard Business School, *Corporate Financial Engineering*, http://www.hbs.edu/mba/
academics/coursecatalog/1426.html (last visited Nov. 6, 2009).

in energy transactions that involved entering into a series of long-term contracts with both energy producers and energy consumers, with the contracts designed to minimize risks of price and demand fluctuations. The patent application had numerous problems with basic patent law doctrines, including the overarching problem that such hedging strategies have long been known and thus the claimed inventions were likely either not novel or obvious in light of the prior art. The PTO, however, did not reject Bilski's application on novelty or obviousness grounds but instead ruled that the Bilski's method was not patentable under the §101 of the Patent Act because, among other reasons, the method was "non-machine-implemented" and did not involve a "transformation of physical subject matter."[69] On appeal, the PTO crystallized that interpretation of the Patent Act into the "machine-or-transformation" test[70] and was successful in convincing an en banc Federal Circuit to adopt the test as the "*sole* test" for determining whether a process was a patentable "process" within the meaning of § 101 of the Patent Act.[71] The question presented to the Supreme Court was whether the Federal Circuit and the agency were correct in employing such a machine-or-transformation test as the touchstone for construing the word "process" in § 101 of the Patent Act, which defines the statutory classes of patentable subject matter.

Yet while the machine-or -transformation test was technically the issue in the case, two other issues were constantly arising in the briefing and argumentation before the Federal Circuit and Supreme Court. The first issue was whether business methods were patentable at all, and the second issue was whether the *State Street* decision would be reaffirmed, modified or abandoned. From one perspective, it was really quite extraordinary that these two intertwined issues were so important to the *Bilski* litigation, for both Bilski and the PTO took the position that business method patents were permissible and that *State Street* was correctly decided.[72]

From a more realistic perspective, however, it is not at all a surprising that these two issues were so important to the litigation. Though the parties to the litigation—the government and the patent applicants –were not disputing the viability of business method patents, the Supreme Court had never sustained the patentability of any business method patent, and numerous amici argued in

69. Ex parte Bilski, 2006 Pat. App. LEXIS 51, *38 (Bd. Pat. App. Int. 2006) (articulating test); see also id. at *52-*56.

70. PTO Supp. Br. for Hearing En Banc 6 (March 6, 2008).

71. In re Bilski, 545 F.3d 943, 955 (Fed. Cir. 2008) (emphasis in the original).

72. Pet. Br. at 15 (arguing that business methods are patent eligible) & at 33 (arguing that Congress "had embraced" the *State Street* decision by adding to the Patent Act a new section 273, which imposed special limitations of rights applicable to business method patents only); Govt. Br. at 50-51 (stating that the machine-or-transformation test "does not reinstate the 'business methods exception'"); Tr. of Oral Arg. at 41-42 & 44 (attorney from the Solicitor General's Office repeatedly noting that *State Street* would come out the same way under the government's position). The government did not endorse the *reasoning* of *State Street*, but it did embrace its *result.*

favor of a per se rule against the patentability of business methods. Since *State Street* was *the* most prominent lower court decision establishing the patentability of business methods, it was natural for that decision to be in the dock too.

The narrow holding of the Supreme Court in *Bilski* was that patentable processes were not restricted by machine-or-transformation test; indeed, not one Justice voted in favor of that test. That unanimous result was not surprising given that the government had presented the Supreme Court with the same argument four decades earlier, and the Court had then also declined to adopt such a restrictive definition of patentable processes. [73] Thus, the machine-or-transformation test was really minor sideshow in a much more fundamental struggle concerning the scope of patentable subject matter, and in that more fundamental struggle, the two main issues were the viability of business method patents and the fate of *State Street*.

Curiously, the case produced a puzzling divergence in how the Court resolved those two issues. All nine Justices joined opinions that disavowed or overtly disparaged the Federal Circuit's *State Street* decision. In some meaningful way, the charge of judicial activism against the *State Street* court and the Federal Circuit succeeded. [74] Still despite the flogging of *State Street*, the attack on business method patents failed. A majority of the Court unequivocally held that business methods are patentable.[75] That holding makes the fate of *State Street* hard to explain, for the practical importance of that decision flowed not the specifics of the court's legal test for patentable subject matter (which the Federal Circuit had previously articulated in a prior en banc decision not involving business methods), but from the court's holding that business methods were patentable at all.

Two points explain *Bilski*'s divergent treatment of *State Street* and business methods: the current Court's adherence to textualism in statutory interpretation (discussed in art A below), and the Court's continuing unease over the wisdom of permitting patents on business method (part B). As much as technological change occurring outside the legal system explains the rise of business method, these two points—points from inside the legal system—are essential to explain the fate of business method patents, both in *Bilski* itself and in the future.

73. See Gottschalk v. Benson, 409 U.S. 63, 72 (1972) (noting that the government had urged the Court to limit the scope of patentable processes with a machine-or-transformation test but declining to adopt the rule). See also Reply Br. for Petitioner at 7-8, in Gottschalk v. Benson, 409 U.S. 63 (1972) (No. 71-485).

74. For example, as Justice Stevens opinion, the ban on patenting business method had been "well established" "[f]or centuries" until "[i]n the late 1990's, the Federal Circuit and others called this proposition into question." Bilski, 130 S.Ct. at 3232(Stevens, J., concurring in the judgment).

75. Bilski, 130 S.Ct. at 3228 (holding that § 101 "precludes the broad contention that the term 'process' categorically excludes business methods"); id. at 11 (holding that "a business method is simply one kind of 'method' that is, at least in some circumstances, eligible for patenting under §101").

A. *Textualism's Triumph in Bilski.*

1. The Trend toward Textualism. More than three decades prior to the Supreme Court's decision in *Bilski*, Justice Stevens— then the most junior Justice on the Court—confidently asserted in *Parker v. Flook* that Supreme Court precedent "forecloses a purely literal reading of § 101 [of the Patent Act]."[76] In 2010, with Justice Stevens the most senior Justice sitting for his very last session on the Court, the majority of the Court was no longer willing to dismiss literal interpretations of statutory law so easily. Between 1978 and 2010 the Court had shifted dramatically toward placing greater reliance on textualism in statutory interpretation. That jurisprudential change was almost certainly the single most important factor in explaining the result in *Bilski*, for the majority in *Bilski* was comprised exclusively of the Justices most strongly identified with a textualist approach to statutory interpretation. Even among Justices who were skeptical of business method patents, the jurisprudential commitment to use "'ordinary, contemporary, common meaning'"[77] in interpreting the Patent Act (and indeed all federal statutes) seemed to overcome any qualms about the policy wisdom of recognizing business method patents.[78]

The shift towards textualism was hardly unprecedented even in patent cases. Even at the time in *Flook*, the Supreme Court was beginning to turn toward greater reliance on textualism in statutory interpretation. The very same month *Flook* was decided, the Court also decided the famous "snail darter" case *TVA vs. Hill*,[79] which is commonly considered to be "[t]he leading plain meaning case of the Burger Court."[80] While *Hill* not nearly as text-bound as more recent Supreme Court decision (the opinion relied extensively on the legislative history to buttress the plain language of the statute), the Court's opinion did have two important features in common with what would be the Court's very next opinion on patentable subject matter, *Diamond v. Chakrabarty*.[81] Both decisions were authored by Chief Justice Burger, and both emphasized the importance of using the "ordinary" meaning of words in statutory interpretation.[82]

76. Parker v. Flook, 437 U.S. 584, 589 (1978).

77. Bilski at 6 (quoting Diehr, at 182).

78. Justice Kennedy, the author of the majority opinion in *Bilski*, had previously suggested business method patents to be of "suspect validity." eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 397 (2006) (Kennedy, J., concurring). Similarly, Justice Scalia, who provided the crucial fifth vote to make parts of Justice Kennedy's opinion into an opinion of the Court, also joined Justice Breyer's concurrence, which disparaged some of the method patents issued after *State Street* as "rang[ing] from the somewhat ridiculous to the truly absurd." *Bilski*,, 130 S.Ct. at 3259(Breyer, J., concurring in the judgment) (quoting *In re Bilski*, 545 F. 3d 943, 1004 (CA Fed. 2008)(Mayer, J., dissenting)).

79. 437 U.S. 153 (1978). The case interpreted the Endangered Species Act to sustain an injunction against completion of multimillion dollar dam to perverse a particular species of fish known as a snail darter.

80. William N. Eskridge, Jr., *The New Textualism*, 37 UCLA L. Rev. 621, 627 (1990).

81. Diamond v. Chakrabarty, 447 U.S. 303 (1980).

82. Id. at 308; see also *Hill*, 437 U. S. at 173.

Chakrabarty, a 1980 decision, was followed the next year with *Diamond v. Diehr*, which once again emphasized the importance of using the "ordinary" meaning words in statutory interpretation.[83]

The shift towards textualism in statutory interpretation was bound to help arguments favoring an expansive view of patentable subject matter. In 1980, *Chakrabarty* noted that "[i]n choosing such expansive terms as [are in §101 of the Patent Act], modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope," and warned that "courts should not read into the patent laws limitations and conditions which the legislature has not expressed."[84] The 1981 decision in *Diehr* reiterated the warning against reading into the statute "limitations and conditions with the legislature has not expressed." Two decades later, in *JEM Ag Supply v. Pioneer Hi-Bred*, Justice Thomas also began the Court's legal analysis by focusing on the text of the statute and concluding that, in light of the statutory language, Congress must have intended for patentable subject matter to be "given wide scope."[85] Indeed, in *JEM Ag Supply*, the Court's increasing reliance on textualism seemed to point only toward the broadening patent subject matter, for the Court described the language of § 101 as not merely broad but "extremely broad." [86]

Chakrabarty, *Diehr* and *JEM Ag Supply* were the Court's three most recent decisions on patentable subject matter prior to *Bilski.* All three cases both pushed the law towards a textualist interpretation of § 101 and held that the inventions at issue were patentable subject matter. The trend was ominous for the foes of business method patents because it has always been understood that a plain language reading of the statute militates strongly against recognizing a per se rule against patenting business method. Thus the PTO, when it had previously given a tepid endorsement to some sort of business method exclusion from patentable subject matter, readily acknowledged that the business methods "seemingly" fell within the scope of the statute's language.[87] So too Justice Stevens, in arguing unsuccessfully for a per se business method exclusion in *Bilksi*, openly acknowledged that the ordinary meaning of the statutory term "process" includes "any series of steps" and thus supported the broad patentability of business processes.[88]

2. *Bilski* and Textualism. While the patentability of business methods was undoubtedly helped by the generally textualist approach evident in the Court's recent cases interpreting § 101 of the Patent Act, those decisions had also rec-

83. 450 U.S. 175, 182 (1981).

84. 447 U. S. at 308.

85. 534 U.S. 124, 130 (2001).

86. Id.

87. MPEP § 706.03(a) (1st ed. 1949) & MPEP § 706.03(a) (6th ed. 1995), ___; see also text at notes 31 - 32 (discussing the PTO's position on business method patents prior to 1996).

88. Bilski, 130 S. Ct. at 3237_ (Stevens, J., concurring in the judgment).

ognized certain atextual exceptions to patentable subject matter. Those atextual exceptions had always been in tension with the Court's repeated statements that the courts should not "read in" limitations to the Patent Act, but prior Supreme Court decisions had produced nothing but silence as to how the Court reconciled the textualist and atextualist strands of its own doctrine in the area.

Bilski broke that silence. In a remarkable passage near the very beginning of its legal analysis, the Bilski majority recognized that prior Supreme Court "precedents provide three specific exceptions to §101's broad patent-eligibility principles: 'laws of nature, physical phenomena, and abstract ideas.'"[89] After candidly acknowledging that "these exceptions are not required by the statutory text," the Court's opinion did something totally new: It tied those exceptions to the statutory text of § 101, noting that the exceptions are "consistent with"—the majority would pretend they were *required by*—"the notion that a patentable process must be 'new and useful.'"[90]

More than any other, that passage in *Bilski* shows the degree to which a textualist methodology has triumphed in the interpretation of § 101. The Justices in the majority finally felt the need to justify the judge-made exceptions to patentability and they did so by bringing (or by attempting to bring) the exceptions into the framework of textualism. True, the Court was a bit hesitant, even apologetic, in offering its textualist justification for the exceptions. The very next sentence notes that "in any case, these exceptions have defined the reach of the statute as a matter of statutory stare decisis going back 150 years."[91] Yet even that sentence gives good insight into the Court's commitment to textualism: Resorting to stare decisis is a convenient way for the Court to maintain prior precedent interpreting the statute even if a majority of the Justices lack confidence in the interpretive methodology that generated those precedents.

Once the majority of the Court decided that it would adhere to a textualist approach—indeed, that it would adhere to that approach with even more rigor than in previous precedents—the Court's acceptance of business method patents followed easily. A complete ban on business method patents would have required the Justices to read into the statute a new exception, of uncertain scope, that was neither tied to any specific statutory text nor recognized by any prior Supreme Court precedent.

To his credit, Justice Stevens made the best case that could be made on the other side, even to the point of citing the Sherman Act to demonstrate that using the ordinary meanings of words is "a deeply flawed approach to a statute that relies on complex terms of art developed against a particular historical background."[92] Stevens' citation to the Sherman Act was a brilliant gambit, for that statute is a celebrated instance in which even conservative textualist judges

89. Id. at 3225.

90. Id.

91. Id.

92. Bilski, 130 S. Ct. at 3238 (Stevens, J., concurring in the judgment).

have been willing to read a statute as authorizing the courts to develop a judge-made common law unconstrained by the statutory text. [93] But that approach to statutory interpretation cannot be applied broadly or else the entire textualist project collapses, to be replaced by a judge-made New Federal Common Law.[94] Thus, in the end, the debate over the legitimacy of business method patents turned into a debate about textualism in statutory interpretation, and on a Court with a five-Justice block textualists, Justice Steven was doomed to lose that debate, of course by a vote of 5-4.

While textualism can explain the Court majority's acceptance of business method patents, it also is the reason for the Court's hostility to *State Street.* True, the *Bilski* Court was not diverging from *State Street*'s core holding, which was famous for "lay[ing] … to rest" the "ill-conceived" "judicially-created, so-called 'business method' exception to statutory subject matter."[95] The *Bilski* majority did precisely the same thing. Yet even though its acceptance of business methods was its most important holding, *State Street* had applied a particular legal test, sustaining the invention at issue there (a general purpose computer combined with software capable of calculating the share price of a particular type of investment portfolio) because the invention "produce[d] 'a useful, concrete and tangible result.'"[96] From a textualist perspective, the objection to such a holding is not that the test, which became known as useful-concrete-and-tangible or UCT test, is too narrow or too broad. In fact, though the test was assumed to be broad by many patent practitioners, the requirement of a "concrete" and "tangible" result could easily have construed to be quite limiting. But to textualists, leniency or strictness is beside the point. The basic objection is that the test is not connected to the statute.

The *State Street* decision arose in an era when the Federal Circuit seemed predisposed to articulating triple word tests as the benchmarks for statutory patentability standards. The Federal Circuit's other famous triple word test of the era was the teaching-suggestion-motivation or TSM test, which had been used prior to 2007 as the exclusive test for deciding whether claimed inventions were obvious and thus unpatentable under § 103 of the Patent Act. While there were many reasons to reject the TSM test (as the Court unanimously did in *KSR v. Teleflex*[97]), the textualist objection to the test comes through most candidly in Chief Justice Roberts' comment during oral argument that the test "adds a

93. Frank H. Easterbrook, Statutes'Domains, 50 U. Chi. L. Rev. 533, 544 (1983) (recognizing the Sherman Act as an example where Congress has authorized courts to create judge-made federal law).

94. See Henry J. Friendly, In Praise of Erie-and of the New Federal Common Law, 39 N.Y.U. L. Rev. 383, 413-21 (1964) (articulating a theory which would have permitted "eager" judges to resume their traditional common law-making functions based a legislative authorization found in "only the smallest bit of legislating" or "a bit of legislative history").

95. *State Street*, 149 F.3d at 1375.

96. Id. at 1373.

97. 550 U.S. 398 (2007).

layer of Federal Circuit jargon that lawyers can then bandy back and forth, but … it seems to me that it's worse than meaningless because it complicates the inquiry rather than focusing on the statute."[98]

That impulse—to keep the inquiry focused on the statute and its language—has a deep theoretical basis, and it goes a long way to explaining why the Supreme Court rejected a business method exception to patentable subject matter, why it also has rejected nonstatutory triple word tests for patentability standards such TSM or machine-or-transformation (MOT), and why it went out of its way in *Bilski* to note that it was not endorsing *State Street*, with its nonstatutory "UCT" test. The impulse also leads to one very specific forecast for the future.

At the end of the majority opinion in *Bilski*, the Court states that it is "by no means foreclos[ing] the Federal Circuit's development of other limiting criteria that further the purposes of the Patent Act and are not inconsistent with its text."[99] That passage is fairly read as an invitation to the Federal Circuit to continue in its development of the law of patentable subject matter, but the invitation must be read with extreme care. Just one paragraph earlier in its opinion, the majority reiterated that the Court was "once again declin[ing] to impose limitations on the Patent Act that are inconsistent with the Act's text." How then can the Federal Circuit develop "limiting criteria … not inconsistent" with the statutory text given that the Court has interpreted the statutory text so capaciously?

The answer lies in the word "criteria." The plural "criteria" connotes traits or factors applicable in applying a *standard* that may be used in a decision. The approach is different from more hard-edge rules that the Court eschewed in *Bilski* and that it has historically avoided in articulating the limits of patentability.[100] The PTO seems to understand this point now. One month after the *Bilski* decision, the agency invited public comment on proposed guidelines for evaluating patentable subject matter issues. In contrast to the agency's prior endorsement of the machine-or-transformation rule, the proposed new guidelines are notable for stating explicitly that the agency was merely identifying "factors [to be] weighed in making the determination" and that "[i]t would be improper to make a conclusion based on one factor while ignoring other factors."[101]

The Supreme Court's opinion in *Bilski* seems to permit such a standards-based approach, which relies on multiple criteria in deciding issues of patenta-

98. Tr. of Oral Arg. in KSR v. Teleflex at 40 (available at http://www.supremecourt.gov/oral_arguments/argument_transcripts/04-1350.pdf).

99. 130 S.Ct. at 3231.

100. See John F. Duffy, *Rules and Standards on the Forefront of Patentability*, 51 Wm. & Mary L. Rev. 609 (2009) (symposium article) (documenting the historical failure of patentability rules in defining the limits of patentability).

101. Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos, 75 Fed. Reg. 43922, 43925 (July 27, 2010).

ble subject matter, but it would be better if the criteria, or factors, were rigorously tied back to the text and structure of the Patent Act. Thus, for example, the agency's guidelines state that one factor to be considered in patentable subject matter analysis is whether the claimed invention includes a "general concept" in a way that makes the claim "so abstract and sweeping as to cover both known and unknown uses of the concept."[102] That criterion is certainly sensible, but the textualist-minded court might take the additional step of noting that such a general concept is likely not "new" (as the concept of hedging in *Bilski* itself), not "useful" (because, at a high level of generality, many attempts to apply the concept may fail), and incompatible with other provisions of the Patent Act that require inventions to be described in "clear, concise, and exact term" and "particularly … and distinctly claim[ed]."[103] That step is not only prudent but necessary in an era when textualism has triumphed to the degree evident in *Bilski.*

B. *Wary Acceptance of Business Method Patents: Statutory Structure and the Breadth of Patentable Subject Matter.*

The second major difference between the Supreme Court's decision in *Bilski* and the Federal circuit's *State Street* decision concerns the degree to which each court accepted business method patents. A dozen years ago in *State Street*, the Federal Circuit welcomed business method patents. From the rhetoric of the opinion, the court seemed to enjoy "lay[ing] … to rest" the "ill-conceived" "so-called 'business method' exception to statutory subject matter."[104] In *Bilski*, the Supreme Court's tone was utterly different. The Court accepted the patentability of business methods but it did so grudgingly, with the majority opinion even emphasizing that the law might not allow "broad patentability" of such inventions.[105] And the difference was more than just tone. In *State Street*, the Federal Circuit has held unequivocally that the invention at issue there did fall within patentable subject matter. *Bilski* unequivocally held the opposite.

The difference in tone and results between the two cases may seem initially odd. Once a Supreme Court decided to stick to a textualist interpretation of § 101 of the Patent Act, rejection of a business method of exception to patentability was nearly of foregone conclusion, but that does not mean that the Justices have to choose between an all or nothing approach to patentable subject matter. There are at least three legal bases that would allow even the Court's most ardent textualists to limit the scope of patentable subject matter despite the broad and general language in the statute. The first two were expressly recognized by

102. Id.
103. 35 U.S.C. § 112, ¶1 & ¶2.
104. *State Street*, 149 F.3d at 1375.
105. 130 S.Ct. at 3229.

the *Bilski* majority: The words "new and useful" in § 101 provide a textual basis for some of the traditional limitations on patentable subject matter, and statutory stare decisis provides a reason for maintaining some previously recognized limitations. A third justification for limiting patentable subject matter is provided by text and structure of the whole Patent Act.

This last point is often overlooked. A textualist approach to statutory interpretation considers not only the text of the particular section at issue, but also the text of other related statutory provisions and the structure of the entire Act. Such structural arguments are textualist because they are grounded in the text of the statute. The technique can be seen in *Bilski* itself, for the Court majority relied in part on the statutory restrictions explicitly placed on business method patents in § 273 the Patent Act (which was, ironically enough, a provision Congress enacted immediately after *State Street* to curtail business method patents). Under the canon of statutory construction against interpreting one statutory provision to render another superfluous, the *Bilski* majority believed § 273 provided structural support for the conclusion that at least some business methods must be patentable.

While the Bilski Court used a structural argument to reject a restriction on patentable subject matter, such argument can also point in the opposite direction. For example, §§ 112 and 103 of the Patent Act demand, respectively, that a patentable invention be explained and defined in "clear," "exact," "particular," and distinct[]" manners and that it be "not obvious" to "a person having ordinary skill in the art."[106] These and other fundamental statutory requirements of the Patent Act provide textual support for a doctrine such as the traditional "abstract idea" exception to patentable subject matter. If a claimed invention is so abstract and general that statutory requirements cannot be rationally or meaningfully applied to the subject, then the structure of the Act provides a good reason to believe the a claimed invention falls outside the type of "invention" that § 101 of the Patent Act makes eligible for patenting.

Such structurals arguments explain why, in analyzing whether Mr. Bilski's a claimed invention was an abstract idea falling outside the scope of patentable subject matter, the *Bilski* Court included factors that most patent lawyers would quickly recognize are relevant to other sections of the Patent Act such as sections 112 and 103. For example, the Court noted that Bilski's broadest patent claim seem directed to "fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class," while his more narrow claims merely provided "broad examples of how hedging can be used in commodities and energy markets," with "well-known random analysis techniques to help establish some of the inputs into the equation."[107] Of course, if a patent application claims nothing more than "broad" ideas that are "long prevalent," "well-known," and taught in introductory classes, the claims are

106. 35 U.S.C. §§ 112, 103.

107. 130 S.Ct. at 3231.

likely not new or, at best, obvious applications of basic knowledge. Those are solid grounds for rejecting patents claims under sections 102 and 103 of the Patent Act, but it is a logical fallacy to think that, merely because factors are relevant to one section of the Patent Act, they cannot also be relevant to other sections.

Under a textualist approach to statutory interpretation, the language of the patentable subject matter statute may be interpreted to take into account the difficulties that would arise if the other provisions of the act were to be applied to the invention. In short, structural statutory arguments allow an interpretation of § 101 of the Patent Act to consider what might be called a claimed invention's true merits—i.e., the degree to which the invention is new, useful, nonobvious, precisely described, and definitely claimed. The Federal Circuit *State Street* decision took a quite different approach. It treated patentable subject matter as distinct and separate from the statutory inquiries demanded by other sections of the Patent Act.[108] The majority opinion in *Bilski* seems fairly clear in rejecting such compartmentalization, and that approach points toward a future in the law of patentable subject where legal decisionmakers, including the courts and the agency, will be guided by both the intrinsic merits of the invention and the degree to which the Patent Act can be applied in the field.

In evaluating business method patents, decisionmakers will need to look to, and to understand, the newly emerging science and engineering of business. To the extent that a patent claim seems to fit within the rigors of this newly emerging field, it will be more likely to be held patentable. Thus, for example, this approach will help to sustain such patents as the one obtained by the Harvard Business School finance professors because claimed invention can be evaluated against a growing field of prior art that allows new contributions to be identified and carefully defined.[109] By contrast, a patent on a new method for "How to Win Friends and Influence People," such as the one outlined in Dale Carnegie famous book, [110] can be easily seen to be outside any currently developed field having sufficiently rigorous terminology and standards that would allow the Patent Act to be rationally applied.[111]

108. The Federal Circuit had continued to follow this approach even in its decision just prior to the Supreme Court's decision in *Bilski*. See, e.g., Prometheus Labs. v. Mayo Collaborative Servs., 581 F.3d 1336, 1343 (Fed. Cir. 2009) (holding that "it is improper to consider whether a claimed element or step in a process is novel or nonobvious, since such considerations are separate requirements set forth in 35 U.S.C. §§ 102 and 103, respectively").

109. See text and note at note 51, supra (citing to the finance patent by a group of inventors including two Harvard Business School professors).

110. See Dale Carnegie, How to Win Friends and Influence People (1936). The hypothetical example of Carnegie's "method" was raised in the briefing before the en banc Federal Circuit, see Brief for Amicus Regulatory Data Corporation 23-24 (April 7, 2008) and was echoed at the Supreme Court in a question from Justice Scalia during oral argument. See Bilski Arg. Tr. at 4 (questioning whether the Patent Act could apply to "somebody who writes a book on how to win friends and influence people").

111. Perhaps Dale Carnegie did combine a number of common, general practices (e.g.,

This perspective not only explains the result in *Bilski*, but also points the way forward in deciding patentable subject matter cases. If not quite as abstract and subjective as Dale Cargnegie's method, Mr. Biski's claimed method little resembled the cutting edge financial engineering of the sort found in the Harvard finance professors' patent. The Court was able to classify Biski's claims as unpatentable abstract ideas because the Justices were able to perceive (quite correctly) that Bilski's claimed invention was flawed on multiple grounds.

If future litigants want to have their business method patents sustained at the Court, they will eventually have to demonstrate to the Court the emergence of such fields of business and financial engineering. It has, of course, been true for decades that *machinery* of business has become a rich field for patenting. Thus, the company holding the largest number of U.S. patents issued in the last 40 years is—by a wide margin—International *Business* Machines.[112] The patentability of business machines is so widely accepted that even Justice Stevens seemed willing to allow that machines for doing business would not be excluded from patentability,[113] even though that position is not easily reconciled with his view that the constitutional concept of the "useful arts" excludes the entirety of fields "such as business and finance."[114]

Yet within the category of business *methods*, as opposed to business *machines*, even the majority of the Court seemed to believe that, while the Patent Act "open[s] the possibility of *some* business method patents," the statute may "not suggest broad patentability of such claimed inventions."[115] Furthermore,

paying attention in conversation to the other person's interests) in a way that was novel and nonobvious, but it is impossible to tell both because the component practices themselves have no precise definitions and because prior combinations of such practices are not documented.

112. See available Ranked List of Organizations with 1000 or More Patents, as Distributed by the Year of Patent Grant and/or the Year Of Patent Application Filing Granted: 01/01/1969 - 12/31/2009 (available at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_at.htm#PartB). IBM has over 61,333 patents issued during the past four decades, over 50% more than the second place patent holder, which has 38,717.

113. Bilski, 130 S.Ct. at 3248 n.40 (Stevens, J., concurring in the judgment) (noting the possibility that the claims in *State Street* might be patentable because they were directed to "machines, not processes" and suggesting that "an otherwise patentable" invention may not become "unpatentable simply because it is directed toward the conduct of doing business").

114. Bilski, 130 S.Ct. at 3244slip. op. at 24 (Stevens, J., concurring in the judgment). That position required a somewhat selective view of history. For example, to support the point that "the term 'useful arts' was used in the founding era to refer to manufacturing and similar applied trades," Justice Stevens cites a 1807 work entitled *Book of Trades or Library of Useful Arts* and notes that all of 68 trades described in the work involves "creating a product." Id. at 22 & n.28. Yet enlarged editions of the same work published just a few years later include entries for "The Merchant" and "The Attorney," the *Book of Trades and Library of Useful Arts* v, vi (7th ed. 1818).

115. Bilski, 130 S.Ct. at 3229; see also id. (opinion of Kennedy, J.) (concluding that "the Patent Act leaves open the *possibility* that there are *at least some processes* that can be

while four of the Justices from the majority opined that patentable subject matter should not be interpreted so narrowly as to exclude the innovations of the "Information Age," nothing in any of the Court's opinions showed a willingness to recognize a "Business Method Age" or to provide anything more than grudging accommodation for innovations of such an age. That reluctance to embrace business method patents is in stark to the growing reality of business method patents. As shown in the charts below,[116] the PTO now appears not only to be issuing not only hundreds—possibly thousands—of business method patent each year, but also to be issuing hundreds of patents per year directed specifically to the subcategory of financial methods.

fairly described as business methods that are within patentable subject matter under §101) (emphasis added).

116. The charts were compiled using the PTO's web-based advanced search interface (http://patft.uspto.gov/netahtml/PTO/search-adv.htm) for searching issued patents. To compile the chart on business method patents generally (class 705), three search were used for each year. The total number of patents issued per year in the class was determined by the search "CCL/705/$ and ISD/1/1/20xx->12/30/20xx," with the values of "xx" changed for each year. Similarly, the number of patents having at least one claim containing the term "method" was found using the search "CCL/705/$ and ISD/1/1/20xx->12/30/20xx and aclm/method," and the number of patents with the term "method" appearing in the patent's title found with the search "CCL/705/$ and ISD/1/1/20xx->12/30/20xx and ttl/method." The searches to generate the chat on financial inventions (class 705 / subclass 35) were, respectively "CCL/705/35 and ISD/1/1/20xx->12/30/20xx"; "CCL/705/35 and ISD/1/1/20xx->12/30/20xx and aclm/method"; and "CCL/705/35 and ISD/1/1/20xx->12/30/20xx and ttl/method."

The searches for the term "method" in the patent title and claims are ways to estimate the number of method patents being issued by the PTO. The search for "method" in the claims is likely overinclusive, because the term could appear even if the patent is directed to a machine. Conversely, the search for "method" in the patent title is likely underinclusive, since patent titles are short and many other words such as "system" or "process" or "procedure" could be used to summarize the invention. Nonetheless, these proxies give some sense of the large number of business and financial method patents being issued.

Table 1
Patents in PTO Class 705
(Inventions concerning "Financial, Business Practice, Management, or Cost/Price Determination")[117]

Year	Total	Number with "method" in a Patent Claim	Number with "Method" in the Patent Title
2010 (six months)	2463 (six months)	2185 (six months)	1166 (six months)
2009	3007	2629	1507
2008	2642	2336	1404
2007	2050	1788	1064
2006	2201	1884	1145
2005	1434	1248	769
2004	990	835	531
2003	950	791	471
2002	860	704	443
2001	868	734	429
2000	1058	888	531

117. This is the title the PTO gives to this class of invention. For the complete description of the class and its title, see http://www.uspto.gov/web/patents/classification/uspc705/defs705.htm.

Table 2
Patents in Class 705 / Subclass 35
(Inventions concerning "Finance (e.g., banking, investment or credit)"[118])

Year	Total	Number with "method" in a Patent Claim	Number with "Method" in the Patent Title
2010 (six months)	454 (six months)	410 (six months)	234 (six months)
2009	503	454	252
2008	365	336	198
2007	213	200	109
2006	243	210	114
2005	78	71	38
2004	46	40	21
2003	48	42	18
2002	50	41	27
2001	57	45	26
2000	95	77	43

As these charts suggest, there remains a significant disconnect between the Supreme Court and the growing reality of business method patenting. While a narrow majority of the Supreme Court now accepts the legitimacy of business method patents, the Justices have still never upheld the validity of any business method patent, and they appear to believe that business method patenting is and will be a rare phenomenon, even though the PTO is generating hundreds of business method patents per year.

Change comes slowly to the Supreme Court. At least a plurality of Justices have come to accept that the patent system currently exists in the "Information Age,"[119] not the "Industrial Age" of a century ago,[120] or even the "Space Age" of half a century past.[121] The Justices remain either unacquainted with, or suspicious of, the technological revolution in modern business and finance me-

118. For the title and description of subclass 35, see http://www.uspto.gov/web/patents/classification/uspc705/defs705.htm#C705S035000.

119. 130 S.Ct. at 3227 (opinion of Kennedy, J.).

120. Id.

121. In oral argument, the government conceded that its machine-or-transformation test might be modified for some as-yet-unknown "Space Age innovation" but did not seem to recognize that the Space Age was a half century ago. Tr. of Oral Argument in Bilski v. Kappos, No. 08-964, at 48 (available at http://www.supremecourt.gov/oral_arguments/argument_transcripts/08-964.pdf).

thods. As that technological revolution continues, however, its effects will eventually be felt even up to the Supreme Court. Once again, the law will follow the technology.

CONCLUSION: LEGAL METHOD AND THE FUTURE OF PATENTABLE SUBJECT MATTER.

Legal doctrine may be perfectly adequate, even necessary, to explain an individual case, but to explain a whole course of case law, or the emergence of a whole field of legal instruments such as business method patents, scholars must look beyond legal doctrine to the full panorama of social industrial and technological developments. It would be utterly surprising to discover that a full and satisfying explanation for the emergence of business method patents over the last three decades could be found in a single legal development such *State Street* or *Bilski*, or even a series of such developments such as the Supreme Court's increasingly textualist decisions over the past three decades. Rather, as this article has shown, an intellectually rigorous explanation must have neither a legal-centric viewpoint that is blinkered to anything outside of legal doctrine nor a legal-phobic approach that ignores the central importance of statutory language, precedents and jurisprudential currents in imposing constraints on the possible directions that the law might take.

This general point is not new. It well shown in one of the greatest decisions on patentable subject matter ever written, which was issued nearly a century ago by Judge Learned Hand in *Parke-Davis & Co. v. H. K. Mulford Co*.[122] The most admirable quality of the decision lies not in its result but in its reasoning. Hand, then merely a recently appointed district court judge, was already a master of legal distinction, doctrines and precedents, but he also exercised as much care in observing and analyzing the broader world—the industrial, commercial and technological environment within which the invention in the case was created and applied.

The issue in *Parke-Davis* was whether an *artificially purified* version of a *naturally occurring* substance should be viewed as a patentable new product or an unpatentable product of nature. The legal precedent of the era did not provide Hand with a clear answer in the case, but when Hand looked to the larger context, he found clarity. The artificially purified substance was so widely recognized as "a new thing commercially and therapeutically" that uses of the unpurified natural substance "practically disappeared" after the invention became available.[123] That technological and commercial reality was the "one fact [which] stands out, [and] which no one ought fairly to forget," and it explains why Hand thought the result in the case should "be drawn rather from the

122. 189 F. 95 (C.C.D.N.Y. 1911), aff'd 196 F. 496 (2d Cir. 1912).

123. Id. at 103, 115.

common usages of men than from nice considerations of dialectic."[124]

Hand's decision in *Parke-Davis* can be appropriately described as influenced by the then-emerging legal realist movement, but the decision was far from the cynical caricature of legal realism that paints judicial decisions as swayed by what the judge ate for breakfast. The decision is admirable because it respects the constraints of then-existing legal doctrine and because, in applying that legal doctrine and resolving its ambiguities, the decision takes into account the realities of the rest of the universe outside the law.

That approach is essential to provide a complete answer to the question "why business method patents?" The approach reveals the forces that have in the past, and will continue in the future, to control and shape patentable subject matter doctrine. An industrial development—a revolutionary transformation that reshaped business and finance into fields based more on technology and engineering than on "How to Win Friends and Influence People"—provided the impetus for firms to seek and to obtain patents on their business technology. Yet that was only the beginning; it was the genesis of the modern wave of business method patents. The administrative acceptance of such patents, and ultimately, the judicial acceptance (halting as it is), occurred only because of a complex alignment of forces within the legal world, including the absence of any clear statutory language or Supreme Court precedent foreclosing the possibility of business method patents; the happenstance of a congressional amendment that ironically strengthened the legal basis for recognizing business method patents even as it was curbing the rights associated with them; the Supreme Court majority's current embrace of textualism in statutory interpretation; and perhaps also the Court's ability to rely on the established "abstract idea" exception to limit patentability to meritorious business method patents.

In the long term, the most powerful of all these multitudinous forces come from outside the legal realm. The current situation with business method patents is a good example. A lawyer reading the Supreme Court's decision in *Bilski v. Kappos* might conclude that business method patents were likely to remain highly exceptional, with the scope of patentability remaining "not … broad" for the foreseeable future. At the PTO, however, business method patents are now being issued at the rate of hundreds or even thousands per year, including dozens or hundreds of patents in such core business areas as finance. Looking beyond the PTO shows an even greater reality, with a growing appetite on Wall Street for financial engineering and other business technologies; a burgeoning literature on business technology and the engineering of business; and an expanding set of courses, programs and even laboratories at major universities that are dedicated to researching and teaching the modern technology

124. Id. at 114, 103.

and engineering of business. In the long run, the law will serve those realities.

Finally, though this Article has argued that technological developments provide the most fundamental explanation for the advent and acceptance of business method patents, it would be a major mistake to assume that technological development uniformly pushes in favor of broader patentability. A good counterexample may be provided by the current controversy involving the application of Learned Hand's decision in *Parke-Davis* to patents on isolated and purified DNA sequences.[125] Hand's *Parke-Davis* decision is often described as having established a firm rule that purified natural substances are sufficiently distinct and novel as to be patentable subject matter. Indeed, the PTO itself has embraced that viewpoint.[126] But Hand's opinion was based at least in part on the commercial and practical reality surrounding that particular invention (purified adrenaline), and Hand himself was certainly not trying to lock the law into the "nice considerations" of logical rules.

If the reasoning in Hand's *Parke-Davis* opinion is applied to the issue whether isolated and purified DNA sequences should be patentable subject matter, a central question becomes whether an isolated sequence becomes "for every practical purpose a new thing commercially and therapeutically."[127] Evidence in the recent litigation on the patentability of DNA sequences suggests that at least some "scientists in the fields of molecular biology and genomics" consider the practice of patenting isolated DNA sequences to be "a 'lawyer's trick' that circumvents the prohibitions on the direct patenting of the DNA in our bodies but which, in practice, reaches the same result."[128] If that view represents a consensus in the field, and the commercial and technological realities favor treating isolated and purified DNA as equivalent to a naturally occurring DNA, then those facts might provide persuasive reasons for excluding isolated DNA sequences from patentability. Indeed, the situation may be seen as a mirror image of that of business method patents. For isolated DNA sequences, a pre-existing rule of thumb (isolated and purified natural substances are patentable)—a rule never endorsed by the Supreme Court—*favors* a broad approach to patenting, but more recent technological developments may under-

125. See Ass'n for Molecular Pathology v. United States PTO, 702 F.Supp.2d 181, 224-272010 U.S. Dist. LEXIS 35418, *126-*127 (April 2, 2010), in which Judge Sweet rejected Learned Hand's reasoning in Parke-Davis and held unpatentable isolated DNA sequences. See also Intervet v. Merial Ltd., 617 F.3d 1282, 1292 (Fed. Cir. 2010) (Dyk, J., concurring in part and dissenting in part) (asserting that any patent claim to an isolated DNA sequence "raises substantial issues of patentable subject matter under 35 U.S.C. § 101" where the claim "is not limited to the use of a particular isolated DNA molecule in a vaccine or other application")

126. U.S. Patent and Trademark Office, *Utility Examination Guidelines,* 66 Fed. Reg. 1092, 1093 (Jan. 5, 2001) (relying on Hand's *Parke-Davis* opinion to support the view that an isolated DNA sequence is patentable subject matter "because that DNA molecule does not occur in that isolated form in nature").

127. *Parke*-Davis, 189 F.at 103.

128. *Ass'n for Molecular Pathology*, 2010 U.S. Dist. LEXIS 35418, at *4.

mine the original justification for the rule.

None of this is to suggest that the ongoing challenge to DNA patents will succeed, but it does suggest that the ultimate resolution of the controversy will be similar to the experience of business method patents in this respect: The law will eventually follow the technology. Such a course is entirely appropriate for the patent system, which has always been designed to encourage, to follow and ultimately to serve "the Progress of . . . useful Arts."[129]

129. U.S. CONST. art. 1 § 8 cl. 8.

APPENDIX:
FINANCIAL ENGINEERING AT THE TOP 20 ENGINEERING SCHOOLS

Tables Will Be Formatted.

University (Engineering Rank)	Financial Engineering or Quantative Finance Department, Program, Lab or Concentration	School or Department for the Financial Engineering Program	Date Started	Degrees Offered	Represent
MIT (1) Overall: #4 Business: #5	Yes – "The Laboratory For Financial Engineering" http://lfe.mit.edu/	Sloan School of Management	1992	A financial engineering track is also offered at the School of Management	The Lab's curr - Trading Tech ture - Empirical Va Financial Asse - Public Policy Technology
Stanford (2) Overall: #4 Business: #2	Yes http://finmath.stanford.edu/	Department of Mathematics and Department of Statistics. See http://finmath.stanford.edu/index.html ("The Departments of Mathematics and Statistics, in close cooperation with the Departments of Economics and Management, Science & Engineering and the Graduate School of Business, offer an Interdisciplinary Master of Science Degree in Financial Mathematics.")	2000	M.S. in Financial Math In 2007, the Stanford Center for Professional Development introduced a non-degree 6-month executive program that is called the Stanford Financial Engineering Program and is offered by the Department of Management Science and Engineering: http://www.stanford.edu.hk/program.html	- "Financial M http://finmath.s esc.html **- "Advanced T ing" (**http://www.sta 5.htm**)**
California-	Yes	School of Business		M.S. in Financial Engi-	- "Financial Ri

Berkeley (3) Overall: NR Business: #7	http://mfe.haas.berkeley.edu/index.html			neering	ment" - "Fundamenta - "Behavioral F
Georgia Tech (4) Overall: NR Business: NR	Yes http://www.qcf.gatech.edu	Interdisciplinary with units in: College of Management, School of Industrial and Systems Engineering, and School of Mathematics		M.S. in Quantitative and Computational Finance	- "Stochastic P - "Design and I to Support Con - "Numerical M
Illinois-Urbana-Champaign (5) Overall: NR Business: NR	Yes – Financial Engineering is an area of specialization. http://www.business.uiuc.edu/finance/areas.aspx?code=E	College of Business (Department of Finance)		Financial engineering is an area of specialization	- "Financial De - "Financial En - "Managing Fi
Carnegie Mellon (6) Overall: NR Business: #15	Yes http://www.tepper.cmu.edu/master-in-computational-finance/index.aspx http://www.tepper.cmu.edu/mba/mba-programs-coursework/mba-tracks/financial-engineering/index.aspx	School of Business, Department of Mathematical Sciences, Department of Statistics and School of Public Policy and Management	1994	M.S. in Computational Finance (Though the program is named "computational finance," it touts itself as the #1 ranked program in financial engineering.) Specialized MBA track in Financial Engineering (Business School)	- "**Advanced D** - "**Financial C** **- "Quantitativ** - "Studies in Fi - "Simulation f - "Multi-Period
Cal Tech (7) Overall: #6 Business: NR	No	Division of Humanities and Social Science		Elective course offered in the Ph.D. in Social Science curriculum	- "Mathematic
Southern California (7) Overall: NR Business: NR	Yes http://mapp.usc.edu/masterspro-grams/degreeprograms/FE/MSFE.html	School of Engineering, School of Business, and Department of Economics		M.S. in Financial Engineering	" Stochastic Sy - "Uncertainty mization" - "Nonlinear ar
Michigan (9)	Yes	College of Engineer-	1997	M.S. in Financial Engi-	- "Capital Mark

Overall: NR Business: #13	http://financialeng.engin.umich.edu/	ing School of Business, and Department of Mathematics and Department of Statistics		neering	- "Fixed Incom - "Optimizatio
Texas (10) Overall: NR Business: #18	No.	School of Business (Department of Finance and the Department of Management Science and Information Systems)	2005	Ph.D. in Information, Risk and Operations Management with a specialization in quantitative finance, which includes financial engineering http://www.mccombs.utexas.edu/dept/irom/phd/ MBA with concentration in Risk Management http://www.mccombs.utexas.edu/dept/irom/bba/risk/mba_program.asp	- "Investment T - "Financial Ri - "Stochastic M - "Managing C - "Financial Ri - "Stochastic M
Cornell (11) Overall: #14 Business: #17	Yes http://www.orie.cornell.edu/orie/fineng/index.cfm	School of Operations Research and Industrial Engineering; School of Management; Department of Economics; Department of Applied Economics and Management	1995	M.S. in Engineering (Concentration in Financial Engineering); Ph.D. in Operations Research	- "Statistics for - "Monte Carlo - "Fixed-Incom Derivatives"
Purdue (12) Overall: NR Business: NR	Yes (existing program is described as "computational finance") http://www.stat.purdue.edu/purdue_comp_finance/	School of Management; College of Science (Department of Mathematics and Department of Statistics)		A Specialization in Computational Finance may be earned in conjunction with: MBA; M.S. in Mathematics; M.S. in Statistics	- "Mathematics - "Adv. Probab thods" - "Simulation I
California-San Diego (12) Overall: NR	No	School of Engineering (Center for Control Systems and Dynamics)		Faculty research is conducted at the center in Finance and Optimization:	- "Mathematics - "Convex Opti

Business: NR				http://ccsd.ucsd.edu/about/	
Texas A&M (14) Overall: NR Business: NR	No				- "The Mathem See http://www.ma index.shtml; se http://www.ma us.shtml (notin is *Mathematics* *to Financial Er* and Tomasz Za
UCLA (14) Overall: NR Business: #14	Yes http://www.anderson.ucla.edu/x17276.xml	School of Management	2008	M.S. in Financial Engineering	**- "Empirical M** - "**Quantitativ** - "**Fundament** **Accounting"**
Wisconsin (16) Overall: NR Business: NR	Yes http://www.bus.wisc.edu/qmf/default.asp	School of Business (Department of Banking, Investment and Finance)	1993	Quantitative Masters in Finance & M.S. in Finance Program (designed for as preparation for "careers in mathematical finance, financial engineering, and financial modeling")	- "Econ Statisti - "Futures and - "Methods of
Maryland (17) Overall: NR Business: NR	Yes	School of Business		MBA / M.S. in Finance with a concentration in financial engineering. See http://www.rhsmith.umd.edu/finance/masters.aspx (describing "the cross-functional Financial Engineering concentration")	- "Computation ing)" - "Financial Re - "Applied Equ agement"
Harvard (18) Overall: #1 Business: #1	No	School of Business			- "Corporate Fi http://www.hbs log/1426.html - "Functional a

					- "Computation
Princeton (18) Overall: #2 Business: NR	Yes http://orfe.princeton.edu http://www.princeton.edu/bcf	School of Engineering and Applied Science Bendheim Center for Finance	1999 2001	Ph.D. in Operations Research and Financial Engineering Master in Finance with course track in Financial Engineering and Risk Management	- "Applied Stoc - "Financial Ec - "Analytical a Financial Engi - "Modern Reg ries" - "Corporate Fi ing" - "Financial Inv
California-Santa Barbara (18) Overall: NR Business: NR	No	Department of Mathematics; Department of Statistics and Applied Probability		B.S. in Financial Mathematics and Statistics	- "Introduction - "Term-Struct Theory" - "Introduction nancial Engine

The top 20 engineering schools were determined by the 2009 *US News* rankings. http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-engineering-schools/rankings

Information on the financial engineering programs is based on the schools' websites.