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# American University Business Law Review

Volume 9 • 2020 • Issue 2

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The *American University Business Law Review* is published three times a year by students of the Washington College of Law, American University, 4300 Nebraska Avenue, NW, Suite CT11 Washington, D.C. 20016. Manuscripts should be sent to the Senior Articles Editor at the above listed address or electronically at blr-sae@wcl.american.edu.

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Subscription rate per year is the following: $45.00 domestic, $50.00 foreign, $30.00 alumni, and $20.00 single issue. Periodicals postage is paid at Washington, D.C., and additional mailing offices. The Office of Publication is 4300 Nebraska Avenue, NW, Suite CT11, Washington, D.C. 20016. The Printing Office is Sheridan PA, 450 Fame Avenue, Hanover, Pennsylvania 17331. POSTMASTER: Send address changes to the *American University Business Law Review*, 4300 Nebraska Avenue, NW, Suite CT11, Washington, D.C. 20016.

Subscriptions are renewed automatically on expiration unless cancellation is requested. It is our policy that unless a claim is made for nonreceipt of the *American University Business Law Review* issues within six months of the mailing date, the *American University Business Law Review* cannot be held responsible for supplying those issues without charge.

Citations conform generally to *The Bluebook: A Uniform System of Citation* (20th ed. 2015).
To be cited as: 8 AM. U. BUS. L. REV.

*American University Business Law Review*
Print ISSN 2168-6890
Online ISSN 2168-6904

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Volume 9 • 2019-2020


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# MONETARY CONSEQUENCES OF ENVIRONMENTAL REGULATIONS: COSTS OF DOING BUSINESS OR NON-DEDUCTIBLE PENALTIES OR FINES?

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ALEX FIGARES, J.D., LL.M. (IN TAX)**

H. WAYNE CECIL, PH.D.†

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## I. INTRODUCTION

The cost of doing business in the United States has increased significantly with the advent of environmental protection laws and regulations. Federal, state, and local governments are continually strengthening the laws and regulations that protect the environment.[1] For example, a Washington Post article from 2013 reported that in the prior year "[t]he federal government imposed an estimated $216 billion in regulatory costs on the economy . . . ."[2] The article further noted that three-fourths of those costs were driven by two environmental rules that set new fuel economy standards for cars and trucks, and limited mercury emissions from power plants fueled by coal and oil.[3] Environmental regulators and advocacy groups publicize numerous benefits of environmental regulations.[4] Regardless, the cost-burden of compliance rests on the business community. For instance, the U.S. Environmental Protection Agency ("EPA") has promulgated extensive rules for mitigating wetland impacts.[5] These mitigation requirements result in significant costs to real estate developers. Yet, that is only a snapshot of the compliance side

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1. *See generally* Clean Water Act, 33 U.S.C. §§ 1251–1275 (2018) (codifying laws to prevent water pollution); Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–6908 (2018) (governing federal law relating to safe disposal of solid waste); Clean Air Act, 42 U.S.C. §§ 7401–7431 (2018) (controlling air quality); Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601–9675 (2018) (regulating cleanup sites where hazardous material was spilled).

2. Jim Tankersley, *New Regulations Cost $216B and 87 Million Hours of Paperwork. What Do They Reap?*, WASH. POST (Jan. 14, 2013), https://www.washingtonpost.com/news/wonk/wp/2013/01/14/report-new-regulations-cost-216-billion-and-87-million-hours-of-paperwork/?utm_term=.b1f6a31f0016.

3. *See id.*

4. *See id.* (noting government calculations that demonstrate "lives saved and improvements in public health").

5. *See generally* 40 C.F.R. §§ 230.91–230.98 (2008) (detailing the EPA's purpose and general duties).

of the equation.

Businesses not meeting the requirements of environmental laws and regulations are liable for damages to the impacted natural resources and are increasingly being assessed larger penalties and fines. The government seeking indemnification from the alleged violator for Natural Resource Damages ("NRD") is one potential consequence of non-compliance.[6] Several laws establish the authority of Natural Resource Trustees[7] to negotiate with Potentially Responsible Parties ("PRP") to obtain PRP-financed or PRP-conducted assessment and restoration of a natural resource injury, to sue PRPs for the costs of assessing and restoring the natural resource, or to conduct the assessment themselves and seek reimbursement from the PRPs.[8]

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA") is the leading federal law governing NRD compliance.[9] CERCLA does not provide an express standard for measuring NRD but defines the term "damages" as "damages [payable in money] for injury or loss of natural resources . . . ."[10] The regulations provide that the measure of damages is the cost of restoring injured resources to their baseline condition, compensation for the interim loss of injured resources pending recovery, and the reasonable cost of a damage assessment.[11] While not defining the measure of damages, CERCLA provides that "the measure of damages . . . shall not be limited by the sums which can be used to restore or

6. *See* 42 U.S.C. § 9613(g)(5) ("[A]n action under section 9607 of this title for recovery of such indemnification payment from a potentially responsible party may be brought at any time before the expiration of 3 years from the date on which such payment is made.").

7. *See id.* § 9604(b)(2).

8. *See* 33 U.S.C. § 1268(a)(3)(L) (2018) (defining "responsible party" as "an individual or entity that may be liable under any Federal or State authority that is being used or may be used to facilitate the cleanup and protection of the Great Lakes"); 42 U.S.C. § 9622(c)(1) (describing conditions for when a potentially responsible party is liable); *id.* § 9601 (stating objective to provide redress for environmental claims); 33 U.S.C. § 1251 (attempting to restore and maintain the chemical, physical, and biological integrity of the nation's waters); Oil Pollution Liability and Compensation Act, 33 U.S.C. § 2701 (2018) (providing redress for oil-related environmental claims).

9. 42 U.S.C. §§ 9601–9628.

10. *Id.* § 9601(6); *see also id.* § 9607(a) (defining covered persons, scope, recoverable costs and damages, interest rate; and comparable maturity date); *id.* § 9611(b)(2) (defining limitations on payment for natural resource claims and peripheral matters).

11. 43 C.F.R. § 11.15 (2018); *see* 15 C.F.R. § 990.52 (2018) (emphasizing that "trustees must quantify the degree, and spatial and temporal extent of such injuries relative to baseline"); 33 U.S.C. § 2706(d) (highlighting that the "measure of natural resource damages" includes "the cost of restoring . . . or acquiring the equivalent [resource], . . . the diminution in value," and the reasonable cost of assessment).

replace such resources."[12] Trustees may also recover the "reasonable costs" of assessing natural resource damages and any prejudgment interest.[13] Thus, at a minimum, a trustee may seek to recover the costs of restoration, replacement, or acquiring the equivalent of the affected resource, the lost use and non-use values of the natural resource from the time of the injury until restoration, and the reasonable costs of assessing damages.[14]

In light of the current regulatory climate, this Article analyzes the federal income tax consequences to businesses for compliance, or non-compliance, with environmental regulation. A threshold question is whether the cost or expense of complying with environmental regulations or resolving alleged violations is considered a cost of doing business, restoration of damage, or a penalty or fine. To frame the analysis, it is helpful to begin by discussing the various categories of environmental regulatory costs that are commonly imputed on businesses.

## II. CATEGORIES OF ENVIRONMENTAL REGULATORY COSTS

### *A. Environmental Permits*

There may be significant costs associated with preparing and submitting applications for environmental permits. This often includes the need to engage a variety of experts such as engineers, botanists, toxicologists, fish and wildlife experts, hydrologists, geologists, hydrogeologists, and wetlands experts. The permit application process may require responding to requests for additional information from the regulatory authority and engaging in a lengthy negotiation process that ultimately leads to the issuance or denial of a permit. For example, on the federal level, the National Pollutant Discharge Elimination System ("NPDES"),[15] within the Clean Water Act ("CWA"), requires a permit prior to the discharge of pollutants from a point source into

12. 42 U.S.C. § 9607(f)(1); *see* United States v. Alcan Aluminum Corp., 990 F.2d 711, 722 (2d Cir. 1993) (reasoning that a defendant may escape liability for money damages "if it either succeeds in proving" that its conduct "did not contribute to the release" and subsequent damages, or that it contributed "only a divisible portion of the harm" at most); *see also* New York v. Lashins Arcade Co., 881 F. Supp. 101, 102–03 (S.D.N.Y. 1995) (explaining that the Act's minutely limited liability is "essentially tortious in nature" because a defendant establishes a defense by proving, "by a preponderance of the evidence," that a third party's act or omission, other than an employee or agent, caused "the release or threat of release of a hazardous substance" and its subsequent damages).

13. 33 U.S.C. § 2706(d).

14. *Id.*

15. 33 U.S.C. § 1342(a) (2018).

waters of the United States.[16] An NPDES permit imposes limits on the composition of the discharge, monitoring and reporting requirements, and other provisions to protect water quality and human health.[17] According to the EPA, "the permit translates general requirements of the Clean Water Act into specific provisions tailored to the operations of each person discharging pollutants."[18] The EPA has implemented NPDES permitting through its regulatory program.[19] The CWA also provides for delegation to the states.[20]

If the agency denies the permit, the applicant may then challenge the denial in an administrative hearing and, subsequently, in an appellate court.[21] Litigating a permit denial greatly increases the cost to the applicant.[22] For instance, in Florida, an applicant who is denied a permit may file a petition for a formal administrative hearing.[23] Proceeding through the administrative process is usually required prior to seeking redress in court due to the Doctrine of Exhaustion of Administrative Remedies.[24] The U.S. Supreme Court has addressed this long-established judicial doctrine, stating that it assures that "no one is entitled to judicial relief for a supposed threat or injury

16. *See id.* § 1342(f) (stating that administrator shall establish categories of point sources).

17. *Id.* § 1342(o)(2)(4).

18. *NPDES Permit Basics*, U.S. EPA, https://www.epa.gov/npdes/npdes-permit-basics (last visited May 20, 2020) (defining an NPDES permit).

19. 40 C.F.R § 122.1(a) (2018).

20. *See* 33 U.S.C. § 1342(b).

21. *See, e.g.*, FLA. STAT. ANN. § 120.68 (West 2019); *see also id.* § 120.569.

22. *See id.* § 120.569.

23. *See id*.

24. *See* Fla. Dep't of Agric. & Consumer Servs. v. City of Pompano Beach, 792 So. 2d 539, 545 (Fla. Dist. Ct. App. 2001) (noting that the limited exceptions to the exhaustion doctrine include: (1) no adequate administrative remedy exists; (2) an agency is acting without authority and clearly in excess of its legislatively delegated powers; or (3) to invoke the power of the circuit court to decide constitutional issues). Additionally, it should be noted that certain statutes may provide an exception to the general rule. For instance, section 72.011(1)(a) of the Florida Statutes provides, in part: "A taxpayer may contest the legality of any assessment or denial of refund of tax, fee, surcharge, permit, interest, or penalty provided for under . . . [certain specified sections of the Florida Statutes] . . . by filing an action in circuit court; or, alternatively, the taxpayer may file a petition under the applicable provisions of [Ch.] 120." FLA. STAT. § 72.011(1)(a) (2019); *see also* JES Publ'g Corp. v. Fla. Dep't of Revenue*,* 730 So. 2d 854, 855 (Fla. Dist. Ct. App. 1999) (holding that JES had the option to file in circuit court or request an evidentiary hearing from the DOR to prove additional facts needed for its argument regarding a tax issue); FLA. STAT. ANN. §§120.569(1), 120.68; *id.* §373.114 (regarding appeals to the Florida Land and Water Adjudicatory Commission); FLA. R. APP. P. 9.110 (2019) (outlining the applicability of the rule to administrative actions, orders of review for a new trial, and appellate jurisdiction).

until the prescribed administrative remedy has been exhausted."[25] The state of Texas has codified the concept.[26] Disappointed permit applicants often find the process exhausting.

### *B. Wetland Mitigation*

If a real estate development plan displaces wetlands, mitigation becomes a part of the environmental permit negotiation process.[27] Mitigation may be accomplished by creating a new wetland from uplands, enhancing an existing wetland, or preserving an existing wetland through the use of instruments such as a conservation easement.[28] The mitigation may be accomplished offsite and could result in additional costs.[29] A regulatory agency may insist on a ratio of wetlands created, enhanced, or preserved to compensate for impacted wetlands;[30] such that it is cost-prohibitive, and the development may no longer be financially feasible. At a minimum, the process of obtaining approval of a mitigation plan can be costly and complicated.[31]

### *C. Enforcement*

Whether intentionally or inadvertently, a real estate developer may start construction without a permit in violation of environmental laws or regulations. In this scenario, mitigation comes into the picture from the perspective of restoring damage to the environment. The negotiation process is similar to that of permitting, except that the regulatory agency may seek a higher ratio of created, enhanced, or preserved wetlands.[32] Generally, when

25. Myers v. Bethlehem Shipbuilding Corp., 303 U.S. 41, 50–52 (1938) (holding that the district court could not enjoin the NLRB from holding a hearing regarding a union complaint alleging unfair labor practices).

26. *See* TEX. GOV'T CODE ANN. § 2001.171 (West 2019) ("A person who has exhausted all administrative remedies available within a state agency and who is aggrieved by a final decision in a contested case is entitled to judicial review under this chapter.").

27. 40 C.F.R. §§ 230.91, 230.92 (2019).

28. *See id.* § 230.93(c)(2)(iv).

29. *See id.* § 230.93(b)(6).

30. *Id.*

31. *See* FLA. ADMIN. CODE ANN. R. 62–345.100(1) (2016) (detailing the requirements for mitigation proposals).

32. *Compare* 40 C.F.R. § 230.93 (stating compensatory mitigation may be performed using "methods of restoration, enhancement, establishment, and, in certain circumstances, preservation"), *with* FLA. STAT. ANN. §373.414(18) (West 2019) (requiring the establishment of a uniform mitigation assessment method "to determine the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters and to award and deduct mitigation bank credits").

it comes to violations of environmental laws, the greater the environmental harm and deviation from the regulatory requirements, the larger the penalty that may be assessed.[33]

### *D. Natural Resource Damages*

In cases involving NRD, the government is seeking indemnification from the alleged violator for damage to the natural resources.[34] Several U.S. federal environmental laws establish the authority of Natural Resource Trustees to negotiate with PRPs to obtain PRP-financed or PRP-conducted assessment and restoration of a natural resource injury, to sue PRPs for the costs of assessing and restoring the natural resource, or to conduct the assessment themselves and seek reimbursement from the PRPs.[35]

### *E. Penalties and Fines*

#### *i. Consent Orders and Consent Decrees*

When a respondent reaches an agreement with the regulatory agency to resolve an alleged violation, the settlement agreement is embodied in a Consent Order or a Consent Decree.[36] A Consent Order is an administrative order executed by both the enforcement agency and the respondent.[37] A Consent Decree is similar except that it is a judicial order approving the settlement.[38] For example, in August 2018, Southern California Gas Company agreed to a $119.5 million settlement for the Aliso Canyon methane leak.[39] At that time, it was the biggest action that dealt with the

33. *See* Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9609(a)(3) (2018).

34. *See id.* § 9607 ("[L]iability shall be to the United States Government and to any State for natural resources within the State or belonging to, managed by, controlled by, or appertaining to such State . . . ."); 33 U.S.C. § 1321(f)(5) (2018) ("The President, or the authorized representative of any State, shall act on behalf of the public as trustee of the natural resources to recover for the costs of replacing or restoring such resources."); Oil Pollution Liability and Compensation Act, 33 U.S.C. § 2702(a) (2018) ("[E]ach party responsible . . . is liable for the removal costs and damages specified . . . that result from such incident.").

35. 42 U.S.C. § 9607(f)(1); 33 U.S.C. § 1321(f)(5); 33 U.S.C. § 2702(a).

36. *See* 40 C.F.R. § 209.19 (2019); FLA. ADMIN. CODE ANN. R. 40E–1.711(2).

37. *See* 40 C.F.R. § 209.19(b).

38. GOVERNMENT INSTITUTES, ENVIRONMENTAL LAW HANDBOOK 589 (Thomas F. P. Sullivan ed., 21st ed., 2011) ("The difference between the two forms of agreement is that a consent decree is filed with and signed by a federal court, while a consent order does not involve any judicial action.").

39. *See* Tony Barboza, *SoCal Gas Agrees to $119.5-Million Settlement for Aliso Canyon Methane Leak – Biggest in U.S. History*, L.A. TIMES (Aug. 8, 2018, 9:50 AM),

health effects and climate damage of the largest release of methane in U.S. history.[40]

*ii. Final Orders and Judgments*

While a vast majority of enforcement cases are settled, some are litigated, resulting in a final order of an agency or a judgment of a court.[41] These orders and judgments are imposed rather than mutually agreed upon.[42] For example, on April 1, 2019, the North Carolina Department of Environmental Quality ordered Duke Energy Progress, LLC, to excavate all remaining coal ash impoundments in the state.[43] Cleanup costs are estimated to be in excess of $10 billion.[44]

*iii. Fines*

Criminal prosecution of an alleged environmental violation may result in the imposition of a fine.[45] The main difference between penalties and fines is that penalties are generally administrative or civil in nature, while fines typically result from criminal prosecutions.[46] In September 2018, "[a] pipeline company was convicted of nine criminal charges . . . for causing the worst California coastal spill in twenty-five years, a disaster that blackened

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https://www.latimes.com/local/lanow/la-me-aliso-canyon-settlement-20180808-story.html (detailing an agreement between California officials and Southern California Gas Company resolving state agencies' lawsuits against the utility company for releasing over 109,000 metric tons of methane at its Aliso Canyon, California facility).

40. *See id.* (describing the agreement's terms, which include millions of dollars allocated to funding a long-term community health study and various environmental projects to offset the methane leak's effect on global warming).

41. *See generally* FLA. STAT. ANN. § 120.69 (West 2019) (providing avenue for agency enforcement in court).

42. *See id.*

43. *See* Press Release, N.C. Dep't of Envtl. Quality, DEQ Orders Duke Energy to Excavate Coal Ash at Six Remaining Sites (Apr. 1, 2019), https://deq.nc.gov/news/press-releases/2019/04/01/deq-orders-duke-energy-excavate-coal-ash-six-remaining-sites (determining that North Carolina environmental law requires coal company to excavate coal ash at all six sites in the state and dispose of it in a lined landfill).

44. *See* Bruce Henderson, *NC Orders Duke Energy to Dig Up Millions of Tons of Coal Ash at Six Power Plants*, THE CHARLOTTE OBSERVER (Apr. 1, 2019, 9:17 PM), https://www.charlotteobserver.com/news/politics-government/article228681894.html (reporting that the excavation agreement could add an extra four to five billion dollars to previously estimated cleanup costs of almost six billion).

45. *See, e.g.*, FLA. STAT. ANN. § 403.161(3)–(6).

46. *See id.* § 403.161(6) (imposing both "civil penalties and criminal fines" for noncompliance).

popular beaches for miles, killed wildlife and hurt tourism and fishing."[47] The jury found the pipeline company "guilty of a felony count of failing to properly maintain its pipeline and eight misdemeanor charges, including killing marine mammals and protected sea birds."[48] The company estimated that it spent at least $335 million in response costs and will likely face additional large penalties and fines.[49] In the British Petroleum ("BP") Deepwater Horizon Oil Spill, BP is estimated to pay up to $8.8 billion in natural resource damages.[50]

## III. ORDINARY AND NECESSARY EXPENSES

Section 162 of the Internal Revenue Code allows businesses to deduct "ordinary and necessary" business expenses.[51] However, § 162(f) does not allow the deduction of "any amount paid or incurred (whether by suit, agreement, or otherwise) to, or at the direction of, a government or governmental entity in relation to the violation of any law or the investigation or inquiry by such government or entity into the potential violation of any law."[52] Additionally, the Tax Cuts and Jobs Act of 2017 ("TCJA"), contains provisions that may change the litigation and settlement calculus for companies facing environmental enforcement actions.[53] These provisions also apply to certain non-governmental regulatory entities ("NGRE") that shall be treated as governmental entities for purposes of § 162.[54] In order for these provisions to apply, such entities must exercise "self-regulatory powers (including imposing sanctions) as part of performing

47. Associated Press, *Pipeline Company Found Guilty in California's Worst Coastal Oil Spill in 25 Years*, N.Y. POST (Sept. 8, 2018, 12:00 PM), https://nypost.com/2018/09/08/pipeline-company-found-guilty-in-californias-worst-coastal-oil-spill-in-25-years/.

48. *Id.*

49. *Id.*

50. *Natural Resource Damage Assessment,* ENVTL. LAW INST., http://eli-ocean.org/gulf/nrda/ (last visited Feb. 18, 2020).

51. I.R.C. § 162(a) (2018).

52. *Id.* § 162(f)(1).

53. Tax Cuts and Jobs Act (TCJA), Pub. L. No. 115–97, 131 Stat. 2054 (2017). The new additions to the tax code will have a significant impact on litigation since any environmental enforcement action related settlement agreement will now have to identify any payment as either restitution or remediation in order to receive tax favorable treatment. This change will force litigators to negotiate agreements with an eye towards the tax consequences of any agreement. It will also require litigators to raise defenses geared toward the characterization of any action addressing an environmental violation in terms of remediation and restitution.

54. I.R.C. § 162(f)(5).

an essential governmental function."[55]

### *A. Fines or Penalties*

In order to better understand the interplay between "ordinary and necessary" expenses under § 162(a) and "fines or penalties" under § 162(f), we must examine the actual wording of the statute. 26 U.S.C. § 162 provides, in relevant part, as follows:

> (a) In General. There shall be allowed as a deduction all the ordinary and necessary expenses paid or incurred during the taxable year in carrying on any trade or business . . . .
> (f) Fines, Penalties, and Other Amounts
> (1) In General. Except as provided in the following paragraphs of this subsection, no deduction otherwise allowable shall be allowed under this chapter for any amount paid or incurred (whether by suit, agreement, or otherwise) to, or at the direction of, a government or governmental entity in relation to the violation of any law or the investigation or inquiry by such government or entity into the potential violation of law.
> (2) Exception for amounts constituting restitution or paid to come into compliance with law.
> (A) In General. Paragraph (1) shall not apply to any amount that–
> (i) The taxpayer establishes –
> (I) constitutes restitution (including remediation of property) for damage or harm which was or may be caused by the violation of any law or the potential violation of any law, or
> (II) is paid to come into compliance with any law which was violated or otherwise involved in the investigation or inquiry described in paragraph (1)
> (ii) is identified as restitution or as an amount paid to come into compliance with such law, as the case may be, in the court order or settlement agreement, and . . .
> (B) Limitation. Subparagraph (A) shall not apply to any amount paid or incurred as reimbursement to the government or entity for the costs of any investigation or litigation.

#### *i. Revisions to the Exception*

The main changes brought about by TCJA pertain to the exceptions to the non-deductibility of fines, penalties, and other amounts under § 162(f), which will now require express identification of a payment as remediation

55. *Id.* § 162(f)(5)(B).

or restitution,[56] and clear establishment of the payment as remediation or restitution.[57] TCJA also created 26 U.S.C. § 6050X, which requires information reporting to the Internal Revenue Service ("IRS") by the affected governmental entity with respect to fines, penalties, and other amounts.

Prior to the enactment of TCJA, violators of environmental laws and regulations sought to characterize or structure any payments made to the government as remediation or restitution and deduct such payments as a business expense under § 162(a).[58] The issue would usually arise after the violator made the required tax payment, took the deduction under § 162(a), and then the IRS challenged the deduction and sought the deficiency from the taxpayer. In these cases, the IRS would insist that these deductions were fines or penalties and therefore not allowed under § 162(f). The taxpayer would argue that the payment was remediation or restitution and, as such, qualified under the § 162(f) exception. The argument becomes more convoluted if the person or entity made a voluntary contribution to a third party, usually an environmental non-governmental organization, such as the Sierra Club, and then sought a reduction of the penalty or fine in direct proportion to the contribution made, also taking a deduction for the contribution under § 162(a).[59]

Prior to the enactment of TCJA, civil payments, although labeled "penalties," remained deductible if imposed as a remedial measure to compensate another party[60] or if imposed to encourage prompt compliance with a requirement of the law.[61] When faced with the question of whether a particular type of payment was for remediation or restitution, which could

56. *Id.* § 162(f)(2)(A)(ii).

57. *Id.* § 162(f)(2)(A)(i).

58. *See* Allied-Signal, Inc. v. Comm'r, 63 T.C.M. (CCH) 2672, 2680 (1992) (showing that the company deducted payments for environmental law violations as a necessary business expense under section 162(a)).

59. *See* S & B Rest., Inc. v. Comm'r, 73 T.C. 1226, 1233 (1980) (finding that the deductions were valid under section 162(a) because the payments were not in response to a violation or fine but an agreement to control the "quality and quantity of sewage discharges"); *see also Allied-Signal, Inc.*, 63 T.C.M. at 2681 (arguing that payments to a third-party endowment were voluntary and thus not a fine or penalty "serv[ing] to punish or deter the payer").

60. Huff v. Comm'r, 80 T.C. 804, 821–22 (1983) (quoting S. Pac. Transp. Co. v. Comm'r, 75 T.C. 497, 652 (1980)) (illustrating that section 162(f), prior to the enactment of the TCJA, "does not preclude deductions for civil penalties which is imposed to encourage prompt compliance with a requirement of the law, or as a remedial measure to compensate another party for expenses incurred as a result of the violation").

61. Jenkins v. Comm'r, 72 T.C.M. (CCH) 1470 (1996) (quoting *Huff*, 80 T.C. at 821–22).

be deductible under § 162(a), or whether the payment was a fine or penalty, and thus not deductible under § 162(f), courts had to engage in an often tedious case-by-case analysis of the facts to make that determination.

However, in light of the amendments to § 162(f), this tedious analysis may now be a moot point since, under the TCJA, a taxpayer must: (i) establish that the payment was for remediation or restitution; and (ii) must expressly and clearly identify the payment as such.[62] Although there are no reported cases analyzing this issue, it would appear that any payment labeled a penalty in a court order or settlement agreement would not qualify for a deduction even if it was imposed as a remedial measure to compensate another party.

There are instances, however, where a payment may be both a penalty and restitution.[63] In these cases, the courts try to determine which purpose the payment was designed to serve.[64] However, once again, with the enactment of the amendments to § 162(f), this analysis should be a moot point going forward. The taxpayer (an alleged violator) now must clearly establish that the payment is not a penalty or a fine. If the payment is both, then § 162(f)(2)(A)(ii) requires the judgment or settlement agreement to identify the portion of the payment that is a penalty or a fine.[65] Additionally, under § 6050X, the government official involved in a suit or agreement must file a return setting forth: (i) the amount required to be paid as a result of the suit or agreement;[66] (ii) the amount required to be paid as a result of the suit or agreement which constitutes restitution or remediation of property;[67] and (iii) any amount required to be paid as a result of the suit or agreement for the purpose of coming into compliance with any law that was violated or involved in the investigation or inquiry.[68] The return must be filed at the time that the agreement is entered.[69] The appropriate official must provide the taxpayer with this information at the same time the official provides the

62. I.R.C. § 162(f)(2)(A)(i)–(ii).

63. Waldman v. Comm'r, 88 T.C. 1384, 1387 (1987) (requiring payment of restitution pursuant to taxpayer's guilty plea, constituting a fine or similar penalty).

64. *Id.* (quoting *S & B Rest., Inc.*, 73 T.C. at 1232) ("Where a payment ultimately serves each of these purposes, i.e. law enforcement (nondeductible) and compensation (deductible), our task is to determine which purpose the payment was designed to serve.").

65. I.R.C. § 162(f)(2)(A)(ii) (requiring a court order or settlement agreement to identify the amount for restitution or to be paid for a business to be in compliance with the law).

66. *Id.* § 6050X(a)(1)(A).

67. *Id.* § 6050X(a)(1)(B).

68. *Id.* § 6050X(a)(1)(C).

69. *Id.* § 6050X(a)(3).

IRS with the information required by § 6050X(a).[70] This should eliminate most, if not all, disputes as to whether a particular payment made to the government is deductible.[71] The courts can look not only to the actual language in a particular judgment or court order for guidance, but also at the information return filed by the government in relation to that order or settlement.

### *B. Attorney General Memorandums*

It is likely that the amendment to § 162(f) and the enactment of § 6050X are intended to help with public perception. In the past, many believed that allowing tax deductions for those that caused environmental damage was a subsidy for wrongdoing.[72] This was particularly true when the wrongdoer "donated" to a third party (usually an environmental non-governmental organization) in exchange for a reduction in a penalty or imposed fine.[73] The wrongdoer would then deduct this "donation" as a necessary business expense under § 162(a). The changes effected by TCJA work well with a growing sentiment that settlement payments to third parties should not be used to circumvent the non-deductibility provisions of § 162(f) and that allowing the practice negatively impacts the impartial rule of law.[74]

In fact, prior to the enactment of TCJA, in a memorandum dated June 5, 2017, directed to all Component Heads and United States Attorneys ("2017 Memorandum"), the Attorney General referred unfavorably to certain previous settlement agreements involving the Department of Justice ("DOJ"), which included "payments to various non-governmental, third-

70. *Id.* § 6050X(c) ("[T]he term 'appropriate official' means the officer or employee having control of the suit, investigation, or inquiry or the person appropriately designated for purposes of this section.").

71. *See id.* § 162(f)(2), (5) (stating that non-governmental regulatory entities that "exercise self-regulating powers (including imposing sanctions) in connection with a qualified board or exchange" or "as part of performing an essential governmental function" will be treated as governmental agencies for the purposes of section 162(f)).

72. *See* Tank Truck Rentals v. Comm'r, 356 U.S. 30, 34–35 (1958) (denying a deduction that would "thwart" state policy by "encourag[ing] continued violations" and "increasing the odds in favor of noncompliance").

73. *See, e.g.*, S & B Rest., Inc. v. Comm'r, 73 T.C. 1226, 1232 (1980) (holding that a company's monthly payments to the Pennsylvania Clean Water Fund in lieu of prosecution for discharging sewage waste into an underground waterway are deductible because the payments further the Clean Streams Law policy).

74. *See* Memorandum from Jeffrey H. Wood, Acting Assistant Attorney Gen., to ENRD Section Chiefs and Deputy Section Chiefs (Mar. 12, 2018) [hereinafter Mar. 12 Memorandum], https://www.justice.gov/enrd/page/file/1043731/download (quoting Attorney General Jeff Sessions) ("No greater good can be done for the overall health and well-being of our Republic, than preserving and strengthening the impartial rule of law.").

party organizations as a condition of settlement with the United States."[75] The Attorney General took issue with the fact that the third-party organizations that were beneficiaries of the settlement agreements were neither victims nor parties to the lawsuits.[76] The 2017 Memorandum indicated that the DOJ would no longer engage in this practice.[77] The 2017 Memorandum went on to indicate that, effective immediately, DOJ attorneys could not enter into any agreement on behalf of the United States in settlement of federal claims or charges, including agreements settling civil litigation, accepting plea agreements, or deferring or declining prosecution in a criminal matter, that directed or provided for a payment or loan to any non-governmental person or entity that was not a party to the dispute.[78] However, the 2017 Memorandum did provide for three limited exceptions: (i) a "lawful payment or loan that provides restitution to a victim or that otherwise directly remedies the harm that is sought to be redressed, including, for example, harm to the environment"; (ii) "payments for legal or other professional services rendered in connection with the case"; and (iii) "payments expressly authorized by statute, including restitution and forfeiture."[79]

On January 9, 2018, just after the implementation of TCJA, the acting Assistant Attorney General circulated a memorandum to Section Chiefs and Deputy Assistant Attorneys at ENRD ("ENRD Memorandum").[80] The purpose of the ENRD Memorandum was to provide guidance concerning the application of the 2017 Memorandum, in particular as it pertained to environmental cases. The ENRD Memorandum made it clear that the Assistant Attorney General ("AAG") must approve any provision that contains a payment to a third party under the limited exceptions set forth in the 2017 Memorandum before it becomes a part of an ENRD agreement or decree.[81] The ENRD Memorandum expressly prohibited any third-party payment that could serve as an offset or otherwise allow any reduction in the civil or criminal monetary penalties.[82]

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75. Memorandum from Attorney Gen. Jeff Sessions to All Component Heads and U.S. Attorneys (June 5, 2017) [hereinafter June 5 Memorandum], https://www.justice.gov/opa/press-release/file/971826/download.

76. *Id.*

77. *Id.*

78. *Id.*

79. *Id.*

80. Memorandum from Jeffrey H. Wood, Acting Assistant Attorney Gen., to ENRD Deputy Assistant Attorneys Gen. and Section Chiefs (Jan. 9, 2018) [hereinafter ENRD Memorandum], https://www.justice.gov/enrd/page/file/1043726/download.

81. *Id.* at 1.

82. *Id.* at 2.

The ENRD Memorandum clarified one of the limited exceptions regarding payment to third parties listed in the 2017 Memorandum that allowed payments to third parties that "directly remed[y] the harm that is sought to be redressed" in the action, "including, for example, harm to the environment."[83] The ENRD Memorandum suggests that in limited circumstances, studies of the environmental harm caused by the violations that are the subject matter of the underlying litigation may be included in a plan intended to remedy the environmental harm, even if the study is performed by a non-governmental third-party.[84] The ENRD Memorandum further provides that a third-party payment provision must include "specific requirements to ensure that the payment will directly remedy the harm that is sought to be redressed."[85] The ENRD Memorandum goes on to provide examples of acceptable third-party payments.[86]

The March 12, 2018, memorandum from the acting Assistant Attorney General to the Section Chiefs and Deputy Section Chiefs of the ENRD ("Priority Memorandum") should be of interest to all environmental law practitioners.[87] The Priority Memorandum sets forth the ENRD's enforcement principles and priorities.[88] Of interest is the first enforcement priority to which ENRD should give "particular attention and dedication of resources within the Division."[89] That first priority is a focus on protecting clean water, clean air, and clean land.[90] The Priority Memorandum directs ENRD to "prioritize enforcement actions that provide concrete environmental benefits for clean water, clean air, and clean land."[91] Cases under this designation arise mainly under CERCLA, the Oil Pollution Act, the Resource Conservation and Recovery Act, the Clean Air Act, the Clean Water Act, and the Safe Drinking Water Act.[92] The Priority Memorandum further provides that where referring agencies (such as the EPA) prioritize

83. *Id.* (quoting June 5 Memorandum, *supra* note 75).

84. *Id.*

85. *Id.* at 3 ("A provision stating in general terms that monies that will fund habitat improvements by a particular third-party organization do not contain sufficient specificity to ensure that the standard is met.").

86. *See id*. at 3–5 (listing that "an appropriate third-party payment would:" (1) "directly remedy harm to affected bodies of water"; (2) "support cleanup of pollution from the body of water"; and (3) be a "lawful payment that directly remedies the same kind of harm" in cases involving stationary source pollution).

87. *See* Mar. 12 Memorandum, *supra* note 74.

88. *Id*.

89. *Id.* at 9.

90. *Id.* at 9–10.

91. *Id*. at 9.

92. *See id.*

these types of violations, ENRD will likewise seek to pursue them.[93] As such, in the near future we are likely to see more civil lawsuits and criminal prosecutions under these Acts. This makes understanding the amendments to § 162(f) even more critical and time-sensitive.

### *C. Transitional Guidelines*

To better understand the amendments to § 162(f) and the enactment of § 6050X, it is important to understand how they are to be implemented. In the April 9, 2018, Internal Revenue Bulletin, the IRS provided transitional guidance under §§ 162(f) and 6050X with respect to certain fines and penalties.[94] As of this writing, the Department of the Treasury and the IRS are yet to publish proposed regulations regarding these sections of the Internal Revenue Code. Thus, the transitional guidelines remain the only source for direction.

The most important factor under the transitional guidelines is that reporting under § 6050X will not be required until the date specified in the proposed regulations and in no case earlier than the date of publication of the proposed regulations.[95] Reporting will not be required with respect to amounts to be paid under a binding court order or agreement entered into before the date specified in the proposed regulations.[96] As of the date of this writing, the proposed regulations are yet to be published, and there are no reporting requirements under § 6050X in the meantime.[97] However, a careful practitioner should be on the lookout for the date of publication of the proposed regulations. Although it is the government official that must file the return, the taxpayer must be provided with a copy of the return at the same time it is filed with the IRS.[98]

On the other hand, the requirements of § 162(f) must be complied with immediately. The identification requirement found in § 162(f)(2)(A)(ii) applies to any amount paid or incurred after December 22, 2017, unless the amounts were paid or incurred under a binding order or agreement that was entered into before that date.[99] Until proposed regulations under § 162(f) are

93. *Id.* at 10.

94. *See* Rev. Proc. 2018-23, 2018–15 I.R.B. 474 [hereinafter I.R.S. Bulletin] (providing transitional guidance under sections 162(f) and 6050X to help with new regulations).

95. *See id.* at 476.

96. *Id.*

97. *See id.*; *2018–2019 Priority Guidance Plan,* INTERNAL REVENUE SERVICE (Nov. 8, 2018), https://www.irs.gov/pub/irs-utl/2018-2019_pgp_initial.pdf.

98. *General Instructions for Certain Information Returns (2019)*, INTERNAL REVENUE SERVICE, https://www.irs.gov/instructions/i1099gi (last visited Feb. 12, 2020).

99. I.R.S. Bulletin, *supra* note 94, at 475.

issued, the identification requirement in § 162(f)(2)(A)(ii) is satisfied for a specific amount if the settlement agreement or court order specifically states that the amount is for restitution, remediation, or for coming into compliance with the law.[100] Satisfying the identification requirement of § 162(f)(2)(A)(ii) does not automatically satisfy the establishment requirement of § 162(f)(2)(A)(i).[101] This aspect will require additional guidance, including clarifying what would satisfy the establishment requirement, which is not addressed by the transitional guidance. The proposed regulations will amend and add sections to the Income Tax Regulations as it pertains to §§ 162(f) and 6050X. The regulations should provide additional assistance in determining how a taxpayer establishes that a payment is for remediation or restitution and thus may be deductible under § 162(a).[102]

Even though the transitional guidelines do not provide any direction as to how a taxpayer must establish that a payment is for remediation or restitution, there is no reason to believe that the standard will be any different than in the past. Prior to the enactment of TCJA, a taxpayer that settled an environmental action by making a payment to the government was required to prove that the payment that it sought to deduct as an ordinary business expense under § 162(a) was for remediation or allowable restitution. The main question that the courts have asked when faced with a restitution payment is whether the payment was punitive.[103] If it was, the deduction could be barred; if it was not, then the court must ask whether the payment is an otherwise ordinary and necessary expense of the taxpayer's business.[104] This is necessarily a factual determination that can only be made on a case-by-case basis. Presumably, the establishment requirement of § 162(f)(2)(A)(i) will require a similar analysis.

## IV. CONCLUSION AND PRACTICAL IMPLICATIONS

From a practical perspective, it is imperative that an alleged violator seek immediate counsel. To the extent possible, the alleged violator, whether in a civil or criminal proceeding, should attempt to reach a settlement agreement with the governmental entity pursuing the violation. In so doing,

100. *Id.* at 476.

101. *Id.* at 475.

102. *See id.* at 475–76.

103. Cavaretta v. Comm'r, T.C.M. (RIA) 2010–004 10 (2010) (analyzing the question of whether restitution payments were deductible and explaining that if the payments were punitive, "the deduction may be barred").

104. *See id.* at 13 (recognizing that payments made pursuant to the settlement of a third-party claim can be tax-deductible).

it is imperative from a tax perspective to negotiate the characterization of payments as remediation or restitution that is not punitive in nature. However, such characterization must not be illusory, but actual in nature. For example, it is not enough to merely characterize a particular payment as being for remediation or restitution. The payment must be inextricably tied to actual remediation or restitution efforts. In this regard, substance prevails over form.[105]

To the extent payments are made to third party non-governmental entities, it becomes even more important for the alleged violator to be able to demonstrate a specific reason or benefit for paying the third party for any remediation or restitution efforts. For example, mitigation or restoration of destroyed wetlands may be accomplished by purchasing the right to record conservation easements in mitigation banks. Governmental entities generally do not want the responsibility of maintaining conservation areas. Instead, conservation easements are often granted to non-governmental organizations willing to take on the responsibility.[106] Additionally, in light of recent ENRC policy disfavoring payments to third parties by alleged violators, the party in alleged violation of environmental laws must obtain an ENRC AAG approval prior to entering into any settlement agreement requiring such payment, if it intends to claim a deduction under § 162(a) for such payment.[107]

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105. *See* Gregory v. Helvering, 293 U.S. 465, 468, 470 (1935) (holding that although certain transactions pursuant to a corporate reorganization are not taxable under the Revenue Act of 1928, when a holistic view of a company's reorganization plainly reveals that its efforts were for the sole purpose of avoiding tax liability, the substantive actions of the company determine which tax provisions apply).

106. *See, e.g.*, FLA. STAT. ANN. § 704.06(3) (West 2019) ("Conservation easements may be acquired by any governmental body or agency or by a charitable corporation or trust whose purposes include protecting natural, scenic, or open space values of real property, assuring its availability for agricultural, forest, recreational, or open space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving sites or properties of historical, architectural, archaeological, or cultural significance."); *Wetlands Protection: Partnering with Land Trusts*, U.S. EPA (2003), https://nepis.epa.gov/Exe/ZyNET.exe/100048AH.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000007%5C100048AH.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL (last visited Feb. 18, 2020) (explaining that land trusts can employ "more flexible and creative" conservation techniques than public agencies).

107. *See* ENRD Memorandum, *supra* note 80.

Once a settlement is reached, the alleged violator must ensure that the written settlement agreement expressly and unequivocally identifies any remediation or restitution payment as such. To the extent that the governmental agency imposes penalties or fines, in addition to remediation or restitution, the payment must be broken down by category, so that there is no question as to what portion of the payment is for remediation or restitution, as opposed to a penalty or fine. As it pertains to restitution, the agreement should clearly express that the restitution is not punitive in nature. The clearer the agreement, the more likely it is that the alleged violator will be able to comply with § 162(f) and deduct all or part of the payment as an ordinary and necessary business expense under § 162(a).

To the extent that an agreement cannot be reached and the case proceeds to trial, the substance of any court order or final judgment takes on added significance. Courts have held that the critical difference between a fine or similar penalty is whether the payment is voluntary.[108] By its very nature, any court-ordered payment is not voluntary. "At the very least, a 'voluntary' payment must be one made without expectation of a *quid pro quo* from the court."[109] Thus, any pro-rata reduction in a fine or penalty as a result of remediation or restitution would likely not be voluntary. However, to the extent that the judge orders remediation, restitution, or requires a payment that is remedial in nature, such payment should be expressly and clearly identified as such in the order. Any such payments should be itemized or set apart from the portion of the payment that is a penalty, a fine, or is meant to punish or deter certain conduct. If the judge is not explicit in itemizing the payment in the ruling, the alleged violator must seek clarification and ask the court to separate any required payment into its compensatory and punitive components.[110]

Until the Treasury Department and the IRS issue regulations to clarify and provide further guidance pertaining to §§ 162(f) and 6050X, practitioners should continue to abide by the IRS transitional guidelines. If an entity is

108. *See* Allied-Signal, Inc. v. Comm'r, 63 T.C.M. (CCH) 2672, 2681–82 (1992) (recognizing that a restitution payment made with a "virtual guarantee" that the associated criminal fine would be commensurately reduced is not voluntary and therefore may not be deducted as a legal or professional expense on a federal income tax return).

109. *Id.* at 2681 (holding a contribution to an environmental endowment fund that is made with the clear expectation of a reduced criminal fine is not voluntary).

110. *See, e.g.*, VA. CODE ANN. § 8.01–576.11 (2019) (stating that "upon request of all parties and consistent with law and public policy, the court shall incorporate" the terms of a settlement agreement into the final decree of the case). Many judges, particularly in civil proceedings, will allow the parties to submit an agreed upon order, or if an agreement cannot be reached, submit competing orders. If such is the case, then the alleged violator should be careful to clearly identify and itemize each portion of the required payment.

entering into a settlement agreement with the government for the alleged violation of environmental laws or regulations, it should pay particular attention to strict compliance with § 162(f)'s establishment and identification requirements. Failure to do so will preclude the alleged violator from being able to deduct any payments made pursuant to the settlement agreement.

# THE TWENTIETH CENTURY COWBOY: LAW'S LIGHT TOUCH

HENRY H. PERRITT, JR.*

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## I. INTRODUCTION

Kirby Randall, seventeen, wakes before the sun is up. His internal clock tells him that, before long, the cattle will also be waking up and moving around, ready for breakfast.

He sits up, sticks his bare feet into the legs of a pair of Levi-brand blue jeans, dons a T-shirt, sits down again, and pulls wool socks on. After that, he puts on a pair of pointed toed calf-high cowboy boots, sticks his arms in a work shirt, buttons it, and feels ready to greet the herd.

He knows that cattle, once they lie down for the night, usually sleep through it, but become active just before first light and seek to satisfy their hunger. Left unattended, they will drift as far as they can, which means more work to round them up later for branding, sale, and shipment. He has an incentive to keep the cattle contained; he later will be responsible for the necessary roundup as well.

Kirby works with a half-dozen other cowboys, who divide the necessary tasks up among themselves and alternate standing watch through the night on alert for anything that might cause a stampede. He is an employee of the ranch owner and gets paid a monthly wage, reporting to the foreman who started out as a cowboy just like him.

So far, this story could describe a Kirby in 1870 on a 10,000-acre ranch in Texas or Wyoming or the middle of a long cattle drive from Texas to Dodge City. But this Kirby is a twentieth-century cowboy. He has slept in a bed in a bunkhouse, probably air-conditioned and uses a properly equipped bathroom in the bunkhouse to brush his teeth, relieve himself, and to shower, probably daily, rather than going unwashed for weeks at a time and having to improvise for the other activities in creeks and prairies.

The herd of cattle that Kirby tends belong to only one rancher rather than being intermingled on the open range with herds belonging to others. Kirby's ranch is likely only a few hundred acres rather than thousands or tens of thousands of acres.

When he goes to work, Kirby is as likely to drive an ATV[1] or Jeep as he is to ride a horse. He wants to get his helicopter pilot's license so that he can participate in the new technique of rounding up cattle by a small helicopter:

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1. *See* Amos Kwon, *10 Best Sportsman's All-Terrain Vehicles*, GEAR PATROL (Jan. 23, 2015), https://gearpatrol.com/2015/01/23/10-best-atvs-and-utvs/ (listing popular vehicles); *Full-Size Gator™ XUV Crossover Utility Vehicles*, JOHN DEERE, https://www.deere.com/en/gator-utility-vehicles/full-size-crossover-gators/?CID=SEM_Res_enUS_Dcom_XUV&gclid=CjwKCAjwpuXpBRAAEiwAyRRPgfbPzTkB3I8B0KLwmsdN6Hdmjbi5O8GZ8jEK6FFrco0RaucGNtGkeRoCyoMQAvD_BwE (last visited May 31, 2020).

a technique that is just beginning to gain support, more in Australia and New Zealand than in the United States, so far.

Kirby knows considerably more and pays more attention to selective breeding of the cattle in his charge than his 1870 counterpart; an important part of the brand of his employer is its particular breeds of cattle with associated characteristics desired by the meat processors to whom it sells. In 1870, on the open range, cows and bulls mingled freely, and there was not much opportunity for the ranchers and cowboys to determine who mated with whom. Like his 1870 counterpart, Kirby keeps a gun with him most of the day, but it is not a revolver that he wears on his hip. It is a long gun that he keeps in the vehicle he is using or in a scabbard on the horse. It is not for fighting or defending his herd against rustlers;[2] it is for snakes and wild animals that are not part of a "protected species."

Like his 1870s counterpart, Kirby aspires to own his ranch and herd someday. But rather than beginning to build it by branding "mavericks" on his own,[3] he will try to negotiate a deal with his employer to acquire the necessary stock and to pay for it with salary deductions. He will seek agreement to mingle his private stock with his employer's herds and make economic arrangements for that as well.

If it turns out that ranching does not suit him as a long-term occupation, or if he is unable to work out the necessary business arrangement, he has other options available to him. This fall, he will attend college while he continues to work. He is unlikely to become a town marshal, a stagecoach guard, a gambler, or a saloon keeper.

Kirby's roommate, Bennington, performs other aspects of Kirby's 1870 counterpart's job — what remains of the long cattle drive function. Bennington is an independent owner-operator truck driver, who specializes in hauling live cattle. The cattle, rather than being driven on the hoof by traditional cowboys, now are transported in a semitrailer attached to Bennington's truck tractor. His work replaces not only the cattle drive itself but the transport of live cattle in rail cars to processing plants. Some industry observers call Bennington an "asphalt cowboy."[4]

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2. *See* Wyatt Bechtel, *Cattle Rustlers Busted in Oklahoma Sting Operation*, DROVERS (Aug. 15, 2018, 3:06 PM), https://www.drovers.com/ok-cattle-sting (showing that rustling is still a problem and reporting on cattle theft detected at auction).

3. *See* Henry H. Perritt, Jr. *Rise and Fall of the Cowboy: Technology, Law, and Creative Destruction in the Industrialization of The Food Industry*, 94 N.D.L. REV. 361, 383–85 (2019) (describing the practice of allowing cowboys to build their own herds by capturing maverick calves — calves weaned without being branded with their mothers' brands); *see also* Lewis A. Maverick, *The Term "Maverick," Applied to Unbranded Cattle*, 1 CAL. FOLKLORE Q. 94, 95 (1942) (stating that so long as mavericks remain with their mother, the mother's brand identifies it).

4. SHANE HAMILTON, TRUCKING COUNTRY: THE ROAD TO AMERICA'S WAL-MART

Kirby and Bennington's jobs are the result of four waves of Creative Destruction, the first two of which were the subject of the author's first article on the industrial revolution in the food industry, *Rise and Fall of the Cowboy*.[5]

The next two waves of Creative Destruction that gave rise to Kirby and Bennington's work were shaped by exemptions from general laws that channeled other American industries, in particular economic regulation of transportation and labor law and collective bargaining. This light touch of the law permitted market institutions in the cattle industry to adapt well to important changes in technology after the demise of the long cattle drive. This article begins by reviewing the four waves of Creative Destruction that shaped the American cattle industry from the end of the Civil War to the end of the twentieth century, then identifies the technological and sociological drivers of those waves, focuses on how twentieth-century law left beef markets largely alone, and concludes with a sketch of the twenty-first century in which laws specifically aimed at the cattle industry are likely to change it significantly.

## II. FOUR WAVES OF CREATIVE DESTRUCTION IN THE BEEF INDUSTRY

Joseph Schumpeter named the inevitable process of change and innovation in market economics "Creative Destruction."[6] Creative Destruction results when new technologies and business methods spawn entrepreneurship and new enterprises that eclipse incumbent enterprises.[7] Thus the railroad industry replaced the steamboat industry, and telephony and radio led to the demise of the telegraph industry.[8]

Creative Destruction is a model for understanding the causal relationships

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ECONOMY 135 (2008) (using term in chapter title).

5. *See* Perritt, *supra* note 3, at 371 (analyzing the determinants of the first two waves of Creative Destruction in the beef industry); U.S. DEPT. OF AGRIC., CONCENTRATION IN THE RED MEAT PACKING INDUSTRY 71–72 (1996), https://www.gipsa.usda.gov/psp/publication/con_tech%20report/conc-rpt.pdf [hereinafter CONCENTRATION IN THE RED MEAT PACKING INDUSTRY] (summarizing history of beef industry since 1600 and how transportation and refrigeration encouraged its evolution).

6. *See* JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT 212–55 (1983).

7. *See* JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 83 (1975) (stating that the capitalist economy continues to thrive when innovative goods, techniques, and ventures arise as a result of the current capitalist market).

8. *See* Perritt, *supra* note 3, at 368–69; *see also* Tomas Nonnenbacher, *History of the U.S. Telegraph Industry*, EH.NET, http://www.eh.net/?s=history+of+the+u.s.+telegraph+industry (last visited May 31, 2020) (explaining how the twentieth century saw a rise in the use of the telephone as it was both easier and faster to use, which led to the decline of the telegraph).

between stimuli and effects.[9] Stimuli comprise new technologies introduced into specific markets.[10] Their effects, the model predicts, will be the weakening of incumbent firms and the rise of new ones that eventually replace the incumbents.[11] As with any system subjected to stimuli, the effects exhibit various lags.[12] Some effects occur relatively soon; others are delayed for years or decades. Often, one stimulus causes effects that make the system receptive to other stimuli that set off their own effects.[13] For example, the Creative Destruction model, as it relates to the beef industry, is explained below. The closing off of the open range began to occur even as the long cattle drives were starting in the 1870s, intensified through the remainder of the nineteenth century, and finally was codified years later in the Taylor Act.[14] The effects of this change in land use rights were felt within a decade but continued to play out through many decades more.[15]

Similarly, railroad technology was the stimulus that produced effects in the form of long cattle drives as soon as railheads appeared in Kansas, Nebraska, and Wyoming. As the technology penetrated further, however, it also helped produce an opposing effect; ending the long cattle drives by establishing railheads closer to where herds were cultivated.[16]

The first wave[17] of Creative Destruction in the beef industry ended

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9. *See* SCHUMPETER, *supra* note 7, at 83 (explaining that Creative Destruction exemplifies the method in which the economy evolves and adapts).

10. *See id.* (stating for instance that in the transportation industry, the economy moved "from the mail coach to the airplane").

11. *See id.*

12. *See id.* (explaining that the process of Creative Destruction often takes time and, as a result, should be judged after the passage of time).

13. *See* Perritt, *supra* note 3, at 368 (exemplifying how an old technology or tool, such as steamboats, were replaced by a new technology or tool employed to perform the same activity).

14. *See* 43 U.S.C. § 315 (1934) (providing that the Secretary of the Interior has the authority to regulate the grazing of public lands); *see also* Perritt, *supra* note 3, at 400 (stating that the Taylor Act mandated federal administration of grazing on the public domain).

15. *See* Perritt, *supra* note 3, at 404–05 (explaining how property laws created private farming rights on former open rangeland).

16. Perritt, *supra* note 3, at 392. *See generally* STEVEN W. USSELMAN, REGULATING RAILROAD INNOVATION 15–60 (Cambridge Univ. Press, 2002) (discussing the railroad expansion and the politics of the western railroad development).

17. The definition of "waves" of Creative Destruction is arbitrary. The first and second waves were relatively distinct from the effects of the railroad felt before the effects of the steel-bladed plow, the windmill, and barbed wire. The third wave is distinguished from the second because of the demise of the long cattle drive and open range ranching. Similarly, the third wave is not neatly distinguished from the fourth. The determinants of the fourth wave, particularly truck technology and the public roadbuilding program, intensified the decentralization of beef processing, which was the

localized beef production and gave rise to large-scale open-range ranching and concentrated, geographically centralized beef processing, connected by railroads to railheads where the long cattle drives terminated.[18] The second wave of Creative Destruction brought this industry structure to an end and shifted cattle raising to smaller, enclosed plots of land closer to railheads, which had become more numerous. From 1894 to1905, cattle ranchers transitioned away from using open-range ranching to fenced and owned land; development changed the economics because of land cost.[19] Even as the range wars were sputtering out and a proposal for a federally supported National Cattle Drive was failing in Congress,[20] ranchers in Montana and Wyoming were adapting to reality. They were using barbed wire to fence their ranches rather than relying on the open range. They were growing hay[21] for winter feeding, and they were using smaller pastures that resembled the feedlots of the twentieth century. They also were putting more entrepreneurial energy into improving cattle bloodlines.[22]

The third wave occurred in the first third of the twentieth century[23] and gave rise to a fundamentally different industry structure, which evolved from the ruins of the second wave.[24] The third wave gave rise to a more

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hallmark of the third. *See* Perritt, *supra* note 3, at 401). *See generally* J. STANLEY METCALFE, EVOLUTIONARY ECONOMICS AND CREATIVE DESTRUCTION 10–72 (1998) (tracing the history of Creative Destruction through changes of economic models).

18. *See* Perritt, *supra* note 3, at 371 (analyzing the determinants of the first two wave of Creative Destruction in the beef industry); *see also* CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 71–72 (summarizing how operating costs were reduced in the late 1950s because of the advanced highway system and new refrigeration, slaughter, and shipping technologies).

19. J. OGDEN ARMOUR, THE PACKERS, THE PRIVATE CAR LINES, AND THE PEOPLE 150–51 (1906).

20. *See* THOMAS F. MCILWRAITH & EDWARD K. MULLER, NORTH AMERICA THE HISTORICAL GEOGRAPHY OF A CHANGING CONTINENT 252 (2d ed. 2001) (explaining that the cattle interests proposed a bill in 1885 to establish a national trail from Texas to Canada).

21. *See* ARMOUR, *supra* note 19, at 314 (detailing the use of stored hay as cattle fodder during grass shortages).

22. CHRISTOPHER KNOWLTON, CATTLE KINGDOM: THE HIDDEN HISTORY OF THE COWBOY WEST 234 (2017).

23. *See* Perritt, *supra* note 3, at 398–99 (noting that feedlots took force in society nearly fifty years after the end of the nineteenth century); *see*, *e.g.*, Shawn L. Archibeque, Dillon M. Feuz & John J. Wagner, *The Modern Feedlot for Finishing Cattle*, 2 ANN. REV. ANIMAL BIOSCIENCES 535, 550 (2014) (commenting that the feedlot industry developed in north–central Colorado in the 1930s and 1940s thanks to the availability of growing crop–yields).

24. Perritt, *supra* note 3, at 398–99; *see A Timeline of Changes: Beef Cattle Farming in North America*, ARROWQUIP (June 6, 2017), https://arrowquip.com/blog/cattle-research/timeline-of-changes-beef-cattle-north-america (discussing the trends in beef cattle commercialization in the latter part of the nineteenth century and beyond).

centralized industry that cultivated smaller herds near feedlots and widely dispersed beef processing facilities. Accordingly, beef packers had early instincts to locate slaughtering and dressing facilities as close to the cattle herds as possible.[25] The dominance of the Chicago stockyards faded as the beef packers shifted most of their activity to "branch operations" in places like Omaha, Kansas City, and Fort Worth.[26]

By the close of the 1880s, the packers were beginning to build branch plants near the herds. In 1888 a plant came into operation in Kansas City.[27] By 1893 dressing plants were springing up along the Missouri River.[28] The Chicago packers were developing "auxiliary markets" in Kansas City, South Omaha, East St. Louis, Fort Worth.[29] Local herds near auxiliary markets stayed on local pastures and barns and were fattened on corn right where it was grown.[30] In 1900, Chicago had a third of the market for meatpacking. Kansas and Nebraska had ten percent each.[31]

The fourth wave of Creative Destruction occurred in the second half of the twentieth century with the interstate highway system, the development of the refrigerated truck trailer, and truck drivers hired as independent contractors. The highway based system of slaughtering houses and beef dressing facilities eliminated the intermediary and enabled many farmers to deal directly with retail supermarket chains and to ship their beef directly to them after one stop at a combined slaughterhouse and dressing facility.[32]

The fourth wave intensified geographic dispersion of beef processing facilities and operating trucks on public highways linked cow-calf operations with feedlots and beef processors.[33] The beef processors shipped processed

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25. *See Union Stock Yard & Transit Co.*, ENCYCLOPEDIA OF CHI. (2005), http://www.encyclopedia.chicagohistory.org/pages/2883.html [hereinafter *Stock Yard*] (stating that better transportation methods allowed the beef industry to be decentralized).

26. *See Meatpacking*, ENCYCLOPEDIA OF CHIC. (2005), http://www.encyclopedia.chicagohistory.org/pages/804.html [hereinafter *Meatpacking*] (explaining that railroads allowed beef packers to move their operations further out into the Great Plains).

27. LOUIS F. SWIFT & ARTHUR VAN VLISSINGEN, JR., THE YANKEE OF THE YARDS: THE BIOGRAPHY OF GUSTAVUS FRANKLIN SWIFT 131–32 (1927) [hereinafter YANKEE OF THE YARDS]

28. *See id.* at 28 (stating that plants along the Missouri River were made so that cattle did not need to be shipped as far).

29. *See* Gail Lorna DiDonato, Student Work, *Building the Meat Packing Industry in South Omaha, 1883-1898*, U. NEB. 17 (1989) (stating that packing centers arose as cities tried to overtake Chicago's dominance in the meatpacking industry).

30. *See* ARMOUR, *supra* note 19, at 117–18 (explaining that farmers began to fatten their cattle on their own land in order to improve the quality of the meat).

31. *Id.* at 156.

32. *See Meatpacking*, *supra* note 26 (explaining that the progression of technology and new industry practices allowed farmers to deal more directly with customers).

33. *See Stock Yard*, *supra* note 25 (explaining that highways helped to decentralize

beef in frozen form ("boxed beef") on trucks directly to retail outlets.[34] Six technologies animated the fourth wave.[35] Feedlots, interstate highways, refrigerated truck trailers,[36] further automation of slaughtering and packing, flash freezing, and packaging technologies.

Cattle intended for slaughter still spent the first six to nine months of their lives nourishing on their mother's milk.[37] Then they were turned loose into larger pastures to feed on grass and supplementary hay for twelve to eighteen months.[38] The cattle finished on corn and other carefully selected combinations in more concentrated feedlots located as close as practicable to geographically distributed slaughterhouses.[39] Replacement of rail links by trucks meant that the modern beef cow has to walk almost nowhere.

In the first and second waves, land law and railroad subsidies drove economic events.[40] The beef industry, like the rest of American industry, faced an inflection point in the last two decades of the nineteenth century.[41] U.S. heavy industry and railroads became subject to comprehensive regulation and collective bargaining.[42] The beef industry did not. Except for

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the beef industry).

34. *See id.*

35. *See id.* (listing the six technologies that helped revolutionize the industry).

36. *See generally* U.S. Patent No. 1969151 (filed June 5, 1933) (patenting the design for a refrigerated truck); U.S. Patent No. 2096712 (filed Dec. 2, 1932) (patenting the design for a truck's mechanical refrigerating system).

37. *See* Karin Lindquist et al., *How to Wean Cattle*, WIKIHOW (Mar. 29, 2019), https://www.wikihow.com/Wean-Cattle; Jen Davis, *What Happens if You Don't Wean Calves?*, PETS ON MOM, https://animals.mom.me/happens-dont-wean-calves-9821.html (last visited May 31, 2020) (explaining the preferences for weaning calves in a cattle operation).

38. Barry Estabrook, *Feedlots vs. Pastures: Two Very Different Ways to Fatten Beef Cattle*, THE ATLANTIC (Dec. 28, 2011), https://www.theatlantic.com/health/archive/2011/12/feedlots-vs-pastures-two-very-different-ways-to-fatten-beef-cattle/250543/.

39. Perritt, *supra* note 3, at 371–72.

40. Perritt, *supra* note 3, at 369; *see* Sean M. Kammer, *Railroad Land Grants in an Incongruous Legal System: Corporate Subsidies, Bureaucratic Governance, and Legal Conflict in the United States, 1850-1903*, 35 L. & HIST. REV. 391, 405–06 (2017) (explaining that despite the unpopularity of railroad subsidies, Congress subsidized millions of acres for railroads from 1850–1870, noting the potential for economic growth and spread of "civilization").

41. Perritt, *supra* note 3, at 372–73; Cassidy L. Woodard, *From Cattle Drives to Labeling Legislation: Implications of Mandatory Country of Origin Labeling on the Beef Industry*, 47 TEX. L. REV. 399, 401–02 (2015) (describing how the increased demand for beef at the end of the nineteenth century led to the drastic change from romanticized cattle drives to the growth of the grotesque meat packing conditions and slaughterhouses).

42. Perritt, *supra* note 3, at 423–25; U.S.D.A., AGRIC. COOPERATIVE SERV., SERV. REP. 38, MARKETING FED CATTLE: COOPERATIVE OPPORTUNITIES (Sept. 1993) (detailing the beginning of collective actions in the U.S. livestock industry, including cooperative

the antitrust action brought against the Big Five Packers by the Roosevelt Administration and labeling standards promulgated by the United States Department of Agriculture ("USDA"), most segments of the beef industry continued to enjoy a laissez-faire environment throughout the twentieth century.[43] This laissez-faire environment allowed the third and fourth waves to develop, driven by technology.[44]

Rigorous analysis obligates a student of Creative Destruction to identify the victims and the beneficiaries of each wave. In the cattle industry, the victims of the first wave were local cattle farmers and local slaughterhouses, located near Eastern consumer markets.[45] The beneficiaries were Texas cattle ranchers, the promoters of cattle towns in Kansas, Nebraska, and Wyoming, and the entrepreneurs who built consolidated beef processing facilities such as the Chicago Stockyards.[46] In the second wave, the victims were the Texas ranchers and the promoters of cattle towns.[47] The beneficiaries were smaller cattle farmers and ranchers in the West and the beef processors who had the foresight to take advantage of the spreading railroad technology by establishing remote facilities near the cattle.[48]

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public auctions and small sale lots).

43. Perritt, *supra* note 3, at 415; Committee on Evaluation of USDA Streamlined Inspection System for Cattle (SIS-C), CATTLE INSPECTION 9–11 (1990), https://www.ncbi.nlm.nih.gov/books/NBK235649/ (discussing the timeline of changes to regulation of the beef industry).

44. *See* Perritt, *supra* note 3, at 367 (noting some technological advancements in meat storage and preservation, including canning, pickling, and refrigeration). *See generally A Timeline of Changes: Beef Cattle Farming in North America*, ARROWQUIP (June 6, 2017), https://arrowquip.com/blog/cattle-research/timeline-of-changes-beef-cattle-north-america (discussing innovations in production that impacted the beef industry).

45. *See* Perritt, *supra* note 3, at 365 (discussing how the increased popularity of cattle drives led ranchers to cultivate herds closer to railroads and farther from small towns); *see also* John Fraser Hart & Chris Mayda, *The Industrialization of Livestock Production in the United States*, 38 SOUTHEASTERN GEOGRAPHER 58, 60–61 (1998) (describing how the modern impact of rapid industrialization of the cattle industry after World War II is that a small number of large farms produce a disproportionate share of U.S. livestock products).

46. Perritt, *supra* note 3, at 375; *see also* Hart & Mayda, *supra* note 45, at 63 (finding that early developments in livestock industrialization left the industry "concentrated in the Denver-Omaha-Lubbock triangle, especially in the Southern High Plains area of southwestern Kansas and the panhandles of Oklahoma and Texas").

47. Perritt, *supra* note 3, at 397; Elmer Kelton, *The Texas Almanac: Ranching in a Changing Land*, TEX. ALMANAC (2007), https://texasalmanac.com/topics/agriculture/ranching-changing-land (explaining that blizzards, overgrazing, and drought contributed to loss of income for Texas ranchers).

48. *See* U.S. GOV'T ACCOUNTING OFF., GAO-RCED-97-100, PACKERS AND STOCKYARDS PROGRAMS: USDA'S RESPONSE TO STUDIES ON CONCENTRATION IN THE LIVESTOCK INDUSTRY 16 (1997) (summarizing concentration of industry in Chicago, and

In the third wave, the victims were ranchers who clung to grazing, now on enclosed plots, as a way of feeding their cattle.[49] The beneficiaries were the grain farmers who fed their corn surpluses to cattle on their own properties or feedlots established by others.[50] In the fourth wave, the spread and eventual dominance of truck technology operated on extensive public highways victimized the railroads and the processing firms who concentrated their capital at rail terminals.[51] The beneficiaries were the owners of new, more decentralized, processing facilities located within a day's truck drive of cow-calf operations.[52] The same stimuli intensified the feedlot phenomenon, further victimizing farmers who stuck to grass-fed beef and benefiting entrepreneurs who established specialized and larger feedlots.

Multiple stimuli often reinforce each other and intensify effects.[53] For example, feedlots, distinct from cattle ranches, first emerged because of the corn surpluses, but their evolution and eventual dominance of a phase in the

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then fragmentation after World War II, with slaughterhouses relocating near feedlots in the western High Plains).

49. Perritt, *supra* note 3, at 394–95; John J. Hasko, *Cattle v. Sheep: The Idaho Experience*, 3 THE CRIT: CRITICAL STUD. J. 79, 89 (2010) (discussing cattle grazing for feed sources).

50. *See* Perritt, *supra* note 3, 394–95 (noting that farmers had struggled to develop fencing to keep cattle in and the invention of the barbed wire fence, which allowed farmers to keep their cattle on their properties); J.S. Cotton & W.F. Ward, *Economical Cattle Feeding in the Corn Belt*, U.S. DEP'T AGRIC. (June 24, 1914), https://digital.library.unt.edu/ark:/67531/metadc85802/ (arguing that it was cheaper to feed cattle corn).

51. *See* Perritt, *supra* note 3, at 398 (noting that the refrigerated truck trailer and highway system displaced centralized slaughterhouses linked to markets by a railroad); HAMILTON, *supra* note 4, at 136–37 (discussing the revolutionary impact of refrigerated trucks on the meatpacking industry by enabling smaller market players to bypass rail and the monopolized system of large meatpackers).

52. *See* Perritt, *supra* note 3, at 398–99 (explaining that the fourth round of Creative Destruction led to a decentralized system of smaller farms and feedlots linked to regional slaughterhouses and markets by truckers and there was no longer a need to move cattle across open ranges to transport them via railroads); Marc Stimpert, *Counterpoint: Opportunities Lost and Opportunities Gained: Separating Truth from Myth in the Western Ranching Debate*, 36 ENVTL. L. 481, 490 (2006) (explaining that open ranges led to competition for limited resources, resulting in landed ranchers excluding other kinds of ranchers from access to land and water and resorting to harassment to maintain control).

53. *See* Perritt, *supra* note 3, at 398–99 (tracing the growth of feedlots from small farms to large factories with a thousand cattle stimulated by emergence from feedlots from excess corn and the development of refrigerated trucks); Erik Schlenker-Goodrich, *Moving Beyond* Public Lands Council v. Babbitt*: Land Use Planning and the Range Resource*, 16 J. ENVTL. L. & LITIG. 139, 144–45 (2001) (stating that the competition for resources, coupled with the arrival of sheep in the western range, resulted in even more competition for resources, ultimately leading to ecological degradation).

production chain resulted from truck transportation on public highways.[54]

## III. DRIVERS OF THE THIRD AND FOURTH WAVES

The closing of the open range led to the demise of the long cattle drive and marked the second wave of Creative Destruction.[55] The second wave put in motion forces that led to the third wave.[56] Advances in truck technology and public road construction led to the fourth wave.[57]

### *A. Closing of the Range: Taylor Act of 1934*

The Taylor Act reinforced and codified the decline of open range ranching, which already had fallen into disfavor because of increased farm settlement encouraged by the homesteading laws.[58]

At first, public lands were genuinely open; anyone who wanted to graze his cattle there could do so. But before long, the tragedy of the commons had begun to manifest itself.[59] Overgrazing became a concern, as cattle had to venture farther and farther from the centerline of the trails to find grass that had not already been cropped down by previous herds. Even more important, competition for scarce water resources grew.[60] By the end of the 1870s,

54. *See* Perritt, *supra* note 3, at 398 (discussing the emergence of feedlots from a surplus of grain); *cf.* Brian Sawers, *Race and Property After the Civil War: Creating the Right to Exclude*, 87 MISS. L.J. 703, 705 (2018) (noting the effects of closing the range in the United States were an example of economic change driving legal change, and property law in particular).

55. Perritt, *supra* note 3, at 372 (noting that although the second wave ended cattle drives, it did not end the flow of beef and it channeled production and transportation into smaller herds); *see* MARY G. RAMOS, TEXAS ALMANAC, CATTLE DRIVES STARTED IN EARNEST AFTER THE CIVIL WAR (1991).

56. *See* Perritt, *supra* note 3, at 388–89 (distinguishing Chicago as a hub for meatpacking and noting that forces of the third wave led to the decentralization of slaughterhouses and packing houses closer to the markets); Woodard, *supra* note 41, at 401 (explaining that the farmer's shift of moving cattle near railroad cities to ship cattle by rail stimulated the growth of the meatpacking industry; therefore, increasing the innovation across the country with the need for expanding railroads).

57. *See* Perritt, *supra* note 3, at 388–92 (describing the invention of refrigerated truck technology as delivering efficiencies reflected in the economies of scale); Kaitlyn Trout, *You Can't Have Your Beef and Eat it Too: The Statutory Effect of Anti-Corporate Farming Acts on Family Farms and Beef Corporations,* 39 OKLA. CITY U.L. REV. 513, 530 (2014) (stating that the federal highway system's swift expansion coupled with the innovation of refrigerated trucks enabled meat packagers to move into rural areas near the farmers; therefore, reducing costs and industrializing the meatpacking industry).

58. *See* George Cameron Coggins Margaret, *The Law of Public Rangeland Management II: The Commons and the Taylor Act*, 13 ENVTL. L. 1, 41 (1982) (explaining that the act "allowed for the withdrawal of unappropriated public domain into grazing districts" and thus led to the decline of open range ranching).

59. *See generally id.* (providing background regarding the tragedy of the commons).

60. *See* Perritt, *supra* note 3, at 370 (noting that the increase in cattle drives led to

extralegal mechanisms for enforcing quasi-property rights to the open range had developed.[61] According to law, the cattlemen did not own water rights or grazing rights in the public land.[62] Cattlemen staked claims to regular pastures and regular water sources.[63] The custom of the range induced most other ranchers to respect those claims.[64]

As the range grew more crowded, the voluntary respect diminished in effectiveness, and the ranchers organized associations that formalized the rules and enforced them. The system was especially complete and rigorous in Wyoming before statehood. The Wyoming Cattlemen's Association controlled the public territorial institutions, including its legislature.[65]

The use of public lands diminished substantially in the twentieth century as a result of two political forces leading to legal restrictions.[66] The first of these was the move, stimulated by the dustbowl crisis,[67] to the sustainable

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overgrazed land and scarcity of food and water for the moving cattle); Russel L. Tanner, *Leasing the Public Range: The Taylor Grazing Act and the BLM*, WYOHISTORY.ORG (Aug. 30, 2015), https://www.wyohistory.org/encyclopedia/leasing-public-range-taylor-grazing-act-and-blm (describing how grazing habits were primarily first-come-first-serve: ranchers who first got to the land and water sources ended up controlling these areas).

61. Perritt, *supra* note 3, at 410 (noting that open range ranching led to attempts at a quasi-property regime to reduce disputes); *Invention of Improved Barbed Wire Changes the West,* THE HIST. ENGINE, https://historyengine.richmond.edu/episodes/view/6265 (last visited May 31, 2020) (explaining how barbed wire was invented in the 1870s and used to monitor livestock movement).

62. Andrew P. Morriss, *Miners, Vigilantes, & Cattlemen: Overcoming Free Rider Problems in the Private Provision of Law*, 33 LAND & WATER L. REV. 581, 652 (1998) (explaining that "at the beginning of ranching in the West," although no rancher had legal title to the land, he had "range rights," which were customary rights to water and the surrounding free range land and were recognized by his neighbors).

63. *Id.*

64. *Id.*

65. Perritt, *supra* note 3, at 388 n.106 (articulating the way cattlemen pushed for their own interests through their control of the legislature); *see also* W. Turrentine Jackson, *The Wyoming Stock Growers' Association Political Power in Wyoming Territory, 1873-1890*, 33 THE MISS. VALLEY HIST. REV. 571, 571 (1947) (explaining the role the Wyoming Stock Growers' Association held in influencing public territorial institutions).

66. Perritt, *supra* note 3, at 401 (explaining that property law led to the demise of open range cattle drives). *See generally* Adam M. Sowards, *Public Lands and Their Administration*, OXFORD RES. ENCYCLOPEDIA OF AM. HIST. (Aug. 2017), https://oxfordre.com/americanhistory/view/10.1093/acrefore/9780199329175.001.0001/acrefore-9780199329175-e-396?rskey=fw0XJZ (providing background on the management of public lands in the twentieth century and the political factors that resulted in a decline of available public lands).

67. *See* Michael M. Welsh, *Beyond Designed Capture: A Reanalysis of the Beginnings of Public Range Management*, 1928–38, 26 SOCIAL SCI. HIST. 347, 349–51 (2002) (characterizing general academic view that Taylor Act resulted from rancher concerns about Dust Bowl overgrazing and was intended to ensure that ranchers

management of public and private agricultural land in the plain states. The result was the enactment of the Taylor Act in 1934.[68] The second, beginning to be influential about fifty years later, was the environmental movement, which sought to protect public lands from any kind of private exploitation that might disturb its beauty or displace native species.[69] That movement continues to gain force in the twenty-first century, reinforced by claims that current trends and beef husbandry are unsustainable and contribute to global warming more than petroleum carbon emissions.[70]

The resulting legal restrictions on the use of public land for grazing have curtailed the supply of land for grazing, reinforced by denser settlement throughout the country.[71] This reduction in the supply of land coincided with the continuing increase in the demand for beef.[72] The result is that land has become the dominant factor in beef production. The industry responded by adopting new technologies and business methods that increased the efficiency of land cattle production, thereby keeping its cost tolerable.[73] Enclosed pastures and feedlots are the manifestations of that response.

### *B. Corn Surplus*

Corn surpluses transformed beef husbandry.[74] They made it possible to

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controlled range management); *see also id*. at 354–55 (proposing revised history that Taylor Act originated in more general concerns about Dust Bowl).

68. The Taylor Grazing Act of 1934, 43 U.S.C. §§ 315-315r (1934).

69. *See* Karen Klitz & Jeff Miller, *Con: Cattle Grazing Is Incompatible with Conservation*, BAY NATURE (May 7, 2015), https://baynature.org/article/con-cattle-grazing-is-incompatible-with-conservation/.

70. *Id.*

71. Perritt, *supra* note 3, at 395–97 (explaining how as settlers increased in number, so did the frequency of fencing in previously open land); *cf.* Clarence H. Danhof, *The Fencing Problem in the Eighteen-Fifties*, 18 AGRIC. HIST., 168, 173 (1944) (conveying that in order for settlers to keep their property within their own boundaries, fencing and private land became necessary for farming).

72. Perritt, *supra* note 3, at 365 (stating that cattlemen noticed demand for beef increasing in eastern cities and rushed to meet the demand). *See generally* Hannah Ritchie & Max Roser, *Meat and Dairy Production*, OUR WORLD IN DATA (Aug. 2017), https://ourworldindata.org/meat-production (indicating that global beef production has doubled from 1961–2014).

73. Perritt, *supra* note 3, at 392 (stating that as societal changes made "open-range ranching uneconomical, changes in grain cultivation and production came to the rescue of the beef industry"). *See generally* David I. Smith, *19th Century Development of Refrigeration in the American Meat Packing Industry*, 8 TENOR OF OUR TIMES 99 (2019) (stating that new technological advancements, such as refrigerated railway cars, created a decrease in prices for the cattle industry).

74. *See* William Trimble, *Historical Aspects of the Surplus Food Production of the United States*, 1862–1902, 1 AGRIC. HIST. SOC'Y PAPERS 221, 225 (1921) (explaining that U.S. corn exports increased by a factor of twelve from 1852 to 1881, but some

depend less on grass grown on the open range or enclosed pastures and to feed cattle regardless of the amount or quality of grass available. The corn surpluses facilitated the adjustment to the closing of the open range because surpluses reduced the amount of acreage necessary to feed beef cattle. Typically, a cow-calf pair requires two acres of grassland from time of breeding to the time the calf is weaned.[75] Another one to three acres are required to finish a steer that is entirely grass-fed.[76] By concentrating cattle in feedlots and feeding them corn instead of grass, the amount of land required for cattle production is reduced by at least half.[77] Corn long had been used as a feed supplement. For example, in places where winters were too harsh for the cattle to continue to feed on the open range, cattlemen supplemented with corn.[78] Feedlots are possible, however, only because enough corn is available to feed cattle in them. Ultimately, corn surpluses made feedlots possible.

A graph of corn yields from 1866 shows that corn productivity did not dramatically increase until the late 1930s.[79] Productivity is only one aspect

observers put the onset of the corn surplus much later in time); *see also Big Nutritional Changes in Recent History*, SLANKER GRASS-FED MEAT, https://www.texasgrassfedbeef.com/grass-fed-meat-education/big-nutritional-changes-recent-history (last visited May 31, 2020) (dating corn surplus to use of self-propelled combine beginning with World War II).

75. *See Balancing Your Animals with Your Forage*, USDA, https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1167344.pdf (last visited May 31, 2020) (characterizing the acreage required for raising cattle increases considerably on native grass or in wooded areas); *see also Livestock Management*, TEXAS PARKS AND WILDLIFE, https://tpwd.texas.gov/landwater/land/habitats/post_oak/habitat_management/cow/index.phtml (last visited May 31, 2020) (estimating requirements of 815 acres per cow-calf unit on native grass, 36 acres on tame pastures, and 5075 acres in wooded areas and justifying rule of thumb that it takes 1.82.0 acres of grass to feed one cow-calf pair for 12 months).

76. *See* Greg Halich et al., *Producer's Guide to Pasture-Based Beef Finishing*, U. OF KY. COOPERATIVE EXTENSION SERV. 1, 13 (2015), (suggesting at least one acre per 1,000 steer for finishing; developing overall cost estimate for ranch that finishes steers on grass).

77. *See Corn-Fed: Cows and Corn*, PBS, https://www.pbs.org/independentlens/kingcorn/cows.html (last visited May 31, 2020) (characterizing the ability of feedlots to bring cattle to market weight in fifteen months rather than the normal two to three years for pastured cattle).

78. *See id.* (reporting that steers were fed corn as a supplement, not as a staple, until the 1950s); *see also* Jason Schmidt, *Trends in the Production and Marketing of Grass-fed Beef*, KAN. RURAL CTR., http://old.kansasruralcenter.org/publications/CCCSchmidtGrassFedBeef.pdf (last visited May 31, 2020) (characterizing 1916 as a time of grass-fed in summer and grain-fed in winter and 1950s when "subsidized grain led to dominance of the feedlot industry").

79. *A Brief History of U.S. Corn, in One Chart*, WASH. POST (Aug. 16, 2012), https://www.washingtonpost.com/news/wonk/wp/2012/08/16/a-brief-history-of-u-s-corn-in-one-chart/?utm_term=.dc82644fc264.

of corn supply, however. "For most of the nineteenth century, American farmers were able to produce more and more food by planting on ever more acreage."[80]

This also increased the supply.[81] Supply and demand fluctuated, producing surpluses in some years and not in others.[82] Where there was a surplus, a farmer could feed it to stock or let it rot — there were not markets developed for other uses — such as fuel — until a century later.[83]

### *C. Railroad Rigidities*

Overcoming the inherent rigidities of the rail infrastructure was a centerpiece of the third wave. The rail infrastructure retarded adaptation to new technologies in beef production. The spine of the rail network served long cattle drives and centralized slaughtering and packing operations in a few hubs, mainly Chicago.[84]

Rail transportation is among the most capital-intensive industries that exist.[85] Most of the capital goes into acquiring the right-of-way, surveying the route, and constructing the track.[86] Thereafter, the additional capital outlays are necessary to maintain the track and purchase locomotives and other rolling stock. Rarely is it cost-effective or possible to rip up the track on an existing right-of-way and substitute a railroad running elsewhere, as land-use patterns change.[87] The capital simply is not available for such

80. *Id.*; *see* Philip D. Hubbs, *The Origins and Consequences of the American Feedlot System* 2 (Aug. 2010) (unpublished M.A. thesis, Baylor University) (reporting on how improved agricultural technology, chiefly steel-bladed plow and mechanical reaper led to corn surplus).

81. *See* Hubbs, *supra* note 80, at 2 (explaining that several inventions allowed for larger pieces of land to be effectively utilized, allowing food production to rise).

82. *Id.* at 6–7.

83. *History of Ethanol Production and Policy*, N.D. STATE UNIVERSITY, https://www.ag.ndsu.edu/energy/biofuels/energy-briefs/history-of-ethanol-production-and-policy (last visited May 31, 2020) (characterizing corn ethanol production as beginning in the 1970s during the fuel crisis due to high fuel costs).

84. *See* Hubbs, *supra* note 80, at 21–22 (explaining that spine of the rail network had been constructed to serve larger purposes, and the expansion of the railroad allowed ranchers to not have to drive their cattle to Kansas to a railyard).

85. Matt Wilson, *The Resurgence of Railroads*, CAPITAL GROUP, https://www.capitalgroup.com/content/dam/cgc/tenants/pcs/images/Perspective-Images/Quarterly%20Insights/Summer%202015%20Quarterly_Insights.pdf (last visited Dec. 29, 2019) ( "Rail is one of the most capital-intensive industries, with nearly one-fifth of revenue going toward [maintenance] . . . .").

86. *See* Martha Lawrence, *Railways Are the Future—So How Can Countries Finance Them?*, WORLD BANK BLOG (Feb. 22, 2018), https://blogs.worldbank.org/transport/railways-are-future-so-how-can-countries-finance-them.

87. *See* CURTIS A. MORGAN ET AL., RAIL RELOCATION PROJECTS IN THE U.S.: CASE STUDIES AND LESSONS FOR TEXAS RAIL PLANNING 25 (2006) (explaining the costs of

purposes after initial construction is complete. A railroad, once established, may run additional branch lines to tap new sources of traffic.[88]

At the turn of the twentieth century, the architecture of the rail network was fixed.[89] It was a hub and spoke system.[90] As it pertains to the beef industry, the hubs were in Chicago, Kansas City, and Omaha. The spokes radiated out from those hubs through the West with major facilities for live cattle loading at a few railheads such as Dodge City, Ogallala, Cheyenne, and Miles City.

New technologies made it possible — and sometimes forced — decentralization of ranching and beef packing, it was difficult for the railroads to adapt.[91] Decentralization of ranching meant that cattle were raised in much smaller herds dispersed throughout the cattle-raising states.[92] While the railroads could, and sometimes did, run branch lines to establish railheads in remote places, the economics of the strategy were not good; rarely did the density of cattle loadings cover the capital cost of the branch line.[93] It is now commonplace in transportation economics to understand that the "granger lines," in building out to less dense territories sealed their fate and assured their eventual doom because the traffic could not support their networks.[94]

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railroad relocation).

88. *See* I.E. Quastler*, A Descriptive Model of Railroad Network Growth in the American Midwest, 1865-1915*, 77 ELECTRONIC J. GEOGRAPHY 87, 92 (1978) (providing three "causes" for adding branch lines, including the "widespread belief that local firms could provide effective competition to the major railroads . . . incentive . . . to ship and receive" for speed and cost efficiency, and adding lines for exhaustible resources).

89. *See* Julie A. Hogeland, *An Application of Steindl's Theory of Concentration to the U.S. Meat Packing Industry, 1895-1988*, 32, 33–34, *in* RETHINKING CAPITALIST DEVELOPMENT: ESSAYS ON THE ECONOMICS OF JOSEF STEINDL (Tracy Mott & Nina Shapiro eds., 2005).

90. *See id.*

91. *See* Perritt, *supra* note 3, at 390 (describing how using this technology to revolutionize the food industry further necessitated someone to take the risk of a substantial investment); John M. Thies, *Decentralization in the Meat Packing Industry*, 1 KANSAS STATE U. 1, 2–3 (1965) (noting that changes in technological process had an important influence on decentralization).

92. *See* Perritt, *supra* note 3, at 399 (stating that decentralization of the smaller herds were linked directly to regional slaughterhouses and supermarkets by independent truckers); *see also* Mary Hendrickson, *Creating Alternatives: A Participant Observer's Reflections on the Emerging Local Food System in Kansas City*, 24 SOUTHERN RURAL SOC. 169, 178 (2009) (understanding agricultural alternatives to old methods of farming and the benefits associated with them).

93. *See* Margaret Walsh, *Reviews*, 7 J. AM. STUD. 108, 109 (1973) (describing how "a wide disparity developed between the income and the investment needs of the railroads").

94. *See* SOLON JUSTUS BUCK, THE GRANGER MOVEMENT: A STUDY OF AGRICULTURAL ORGANIZATION AND ITS POLITICAL, ECONOMIC AND SOCIAL

So, for time, ranchers either did not decentralize their ranching operations as much as they would like, sticking close to the established trailheads, or they did decentralize them and incurred the cost of driving the cattle from the new, smaller, ranches to the existing railheads.[95] All the time, they complained loudly about the poor service they received from the railroads, as part of the Granger Movement.[96]

The evolving regulatory regime under the Interstate Commerce Commission ("ICC") further impeded adaptation.[97] While the Interstate Commerce Act popularly is perceived as a consumer-oriented (or shipper-oriented) strategy to restrain monopolistic rate increases, its economic and legislative history shows that it was mainly intended to prevent ruinous competition by placing a floor under rates and limiting market entry.[98] Thus, when a railroad decided it was economical to run a new branch line into growing beef ranching territory, opponents of that new transportation competition could block it through the ICC.[99] Similarly, if a railroad decided it wanted to lower rates to increase traffic and make an existing line pay, anticompetitive forces acting through the ICC could block that rate reduction.[100]

Other aspects of railroad technology interfered with adaptation as well.[101] Not only did the capital intensity of constructing a railroad right-of-way and maintaining it require a certain level of traffic density to provide a reasonable rate of return, but the capital intensity of locomotives made it profitable only when the locomotive pulled a substantial string of cars. Nowhere was it profitable for a locomotive to pick up a single car and haul it all the way to

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MANIFESTATIONS 1870-1880 164 (1913).

95. *See* J. C. Swanson & J. Morrow-Tesch*, Cattle Transport: Historical, Research, & Future Perspectives*, 79 J. ANIMAL SCI. (E. SUPPL.) E102, E103 (2001) ].

96. *See* Martin Ridge, *Ignatius Donnelly and the Granter Movement in Minnesota*, 42 MISS. VALLEY HIST. REV. 693, 703–08 (1956) (describing Granger Movement's focus on legislative railroad regulation).

97. *See Federal Supervision of Railroad Passenger Service: The Sunset Case, Dawn of a New Era or Monument to the Old?*, 1970 DUKE L. REV. 529, 529–30 (1970) (explaining how the Interstate Commerce Commission has played a role in impeding development by intentionally downgrading services).

98. Marg A. Wallace, *Interstate Commerce Commission*, 56 GEO. WASH. L. REV. 937, 959 (1988) (contending that government must encourage "reasonable rates for transportation" yet mitigate "unfair" and "destructive" competition).

99. *See* Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 YALE L.J. 1017, 1023 (1988) (stating that regulations can control market entry and thus restrict competition).

100. *See id.*.

101. *Cattle Car*, AMERICAN-RAILS, https://www.american-rails.com/cattle.html (last visited Dec. 27, 2019).

its destination.[102] The labor cost of engine and train crews, inflated through most of the twentieth century by state "full crew" laws[103] and by collective bargaining agreements,[104] exacerbated the economic disadvantage of moving small trains, even as the locomotive enabled pulling longer ones.

The necessity of running longer trains added to the obstacles to adaptation. Unless traffic density is very high, a railroad cannot assemble a long train unless it comprises cars headed for different destinations.[105] That means that each car has to pass through a succession of classification yards — nodes in the rail network that disassemble inbound trains, aggregate the cars from them going in the same direction, and assemble those cars into another outbound train headed in the general direction of the destinations for the cars. Then, the process is repeated so that the number of cars comprising a train that reaches a particular destination is of efficient length.

Each stop in the classification yards results in delay, usually a day or more to match up inbound trains with outbound trains. The delays often are increased by railroad "blocking" strategies that do not let a train leave the terminal until it has some minimum number of cars.[106] Even when the railroad tracks go to the right places, pickups and deliveries often are delayed because of the need for local trains to have a minimum number of cars to be economic.[107] No trainmaster sends a locomotive with an engine and train crew out to pick up a single car from the shipper and bring it back to the terminal if he can help it.

Semitrailer trucks encounter no such inefficiencies; a driver is happy to take the tractor to an origin and pick up a single semitrailer with a load and drive it directly to its destination and drop it off.

### *D. Trucks and Roadbuilding Flexibilities*

Trucks and highways enabled the beef industry to decentralize. By 1920,

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102. *See id.* (contending that railroads experienced a downfall in part because shipping costs could not be justified for small transport loads).

103. *See* Bhd. of Locomotive Firemen & Enginemen v. Chicago, R. I. & Pac. R.R. Co., 393 U.S. 129, 130 (1968) (describing history of state full-crew laws).

104. *See* Chicago & N.W. Ry. Co. v. United Transp. Union, 330 F. Supp. 646, 648–49 (N.D. Ill. 1971) (issuing injunction against rail union for refusing to negotiate over crew consist dispute; union insisted on adherence to national pattern of collective agreements).

105. *See* Ravindra Ahuja, Krishna Jha, & Jian Liu, *Solving Real-Life Railroad Blocking Problems*, 37 INTERFACES 404, 405 (5th ed. 2007), https://www.researchgate.net/publication/220249980_Solving_Real-Life_Railroad_Blocking_Problems (explaining the use of classification cars in railways).

106. *See, e.g.*, *id.* at 406 (purporting to mitigate delays seen in assembling railway cars).

107. *See id.* (identifying delays in railways).

automobile and truck technology had progressed to the point where trucks had sufficient capacity to provide interesting alternatives to drives of live cattle on foot and rail transport over short distances.[108]The limiting factor was the inadequacy of roads more than shortcomings of the vehicles.[109]

The trucking revolution in transportation differed from the railroad revolution almost a century earlier.[110] The infrastructure for both was built with public funds and subject to shifting political alliances and budget crises.[111] But the railroads, with few and short-lived exceptions, were private sector projects, in which the same corporate entities build the infrastructure and operated the vehicles that ran on it.[112] Road-building was different. Almost all the significant roads after World War I were built by the public sector and remained in governmental hands for operation and maintenance.[113] Others, in the private sector, decided whether to run vehicles on the highway and defined their own purposes. The infrastructure and the vehicles were as firmly inter-dependent as in the case of railroads, but the centers of decision-making were different.[114] When the two were not congruent, governments built highways that were little used, and vehicle owners continued to suffer from an inadequate road network going to where they wanted to go.[115]

*i. Roadbuilding*

Construction of good public roads and truck technology to take advantage of them to haul cattle were defining features of the third wave.[116] The technology of roadbuilding advanced considerably in the nineteenth

108. *See* AMERICAN-RAILS, *supra* note 101 (contending that trucks were more desirable than railways for cattle transport).

109. *See id.* (contending that the highway improvements led to a more widespread use of trucks for cattle drives).

110. Daniel Sweeny, *The Structure of Transp. Revolutions,* UNIVERSITY OF WASH. (last modified Jan. 12, 2005), http://staff.washington.edu/jbs/itrans/charge20.htm (explaining the process of the transportation revolution in the United States).

111. *Id.*

112. *Id.*

113. Rickie Longfellow, *Back in Time: The Nat'l Road,* U.S. DEP'T OF TRANSP.: FED. HIGHWAY ADMIN. (last modified June 27, 2017), https://www.fhwa.dot.gov/infrastructure/back0103.cfm (explaining the creation and development of roads in the United States).

114. Sweeny, *supra* note 110.

115. *Id.*

116. Kathy Weiser, *The Nat'l Road-The First Highway in America,* LEGENDS OF AMERICA (last modified July 2019), https://www.legendsofamerica.com/ah-national road/ (describing how the first national road was developed and the types of roads that existed in the nineteenth century).

century.[117] John McAdam proposed improvements in English roads beginning in 1810, based on raising the roads above ground level, cambering their surface convexly (curving it, with a peak on the centerline, to facilitate drainage, and layered construction with stone slabs at the bottom and crushed rock over it).[118]

Despite the name "macadam," the idea of putting tar or asphalt on the surface came later, in 1901.[119] The problem it sought to solve was the extraction of dust and other small particles from gravel road by the aerodynamic wake of fast-moving automobiles.[120] Eventually, these vehicle dust tails destroyed the integrity of McAdam-designed roads.[121] Roads paved with tar or asphalt did not suffer from this deficiency.[122] Asphalt, derived from petroleum, and mixed with aggregate, generally replaced tar, which was derived from coal, by 1920.[123]

Technologies for road construction, enabling road graders and other earth-moving equipment, also were developed during this period.[124] Before 1920, most country roads were built and maintained by private property owners.[125] They granted easements across their own property — or tolerated easements — to allow others to pass on the roadway.[126] If usage and the cost of maintenance were too much, the landowner would charge a toll.[127] The tragedy of the commons did not develop because the servient tenement for the easements were always in private hands, subject to the power to

117. Sweeny, *supra* note 110.

118. Christopher McFadden, *John Loudon McAdam: The Father of the Mod. Road*, INTERESTING ENGINEERING (Oct. 26, 2017), https://interestingengineering.com/john-loudon-mcadam-the-father-of-the-modern-road.

119. *See* U.S. Patent No. 765,975 (filed Nov. 3, 1902) (claiming apparatus for improving the preparation of tar-soaked gravel).

120. McFadden, *supra* note 118.

121. *Id.*

122. *Id.*

123. *Id.*

124. *See* U.S. Patent No. 823,872 (filed Aug. 29, 1905) (claiming a cutting and scraping blade combined with a compacting roller, mounted on the same horse-drawn frame).

125. Stephen Mihm, *Privatizing Roads Was A Great Idea. Not Anymore.*, BLOOMBERG (Feb. 7, 2018, 11:00 AM), https://www.bloomberg.com/opinion/articles/2018-02-07/privatizing-roads-was-a-great-idea-not-anymore (commenting on the reasons that road privatization was not beneficial in the history of the United States).

126. Daniel B. Klein & John Majewski, *Turnpikes and Toll Roads in Nineteenth-Century America,* ECON. HISTORY ASS'N, http://eh.net/encyclopedia/turnpikes-and-toll-roads-in-nineteenth-century-america/ (last visited Dec. 27, 2019) (describing how privatization of roads was a business and collecting tolls was necessary to finance road maintenance).

127. Mihm, *supra* note 125.

exclude.[128] Farmers and small-town residents resisted governmental roadbuilding programs[129] because of concern about taxes,[130] and because making roadbuilding decisions at the township, county, or state level threatened an ideology of democratic autonomy.[131]

Opposition to the results of this decentralized system gradually developed through the second half of the nineteenth century[132] and intensified with the availability of better grading machinery,[133] better technologies for the roads themselves,[134] the bicycle craze with its organized advocacy,[135] and the widespread adoption of the automobile.[136] States slowly overcame farmer opposition and experimented with a variety of subsidies from higher levels of government, especially for trunk roads, leaving most local autonomy intact.[137] One result was the Federal Aid Road Act of 1916.[138]

Throughout the 1920s, road building and road paving programs advanced on the agendas of state and county governments. Persuading local and state governments to engage in roadbuilding was a nontrivial accomplishment. Significant doubts existed as to the constitutional power of states to fund internal improvements. This constitutional question had not stopped canal-building and railroad building projects, but the argument remained available for anyone who opposed improving the roads. The Great Depression, beginning in 1929, deflated economic activity, but roadbuilding involved

128. Klein, *supra* note 126.

129. Hal S. Barron, *And the Crooked Shall Be Made Straight: Public Road Administration and the Decline of Localism in the Rural North*, *1870-1930*, 26 J. SOCIAL HIST. 81, 88 (1992).

130. *Id.* (explaining that local roadbuilding programs let farmers work on roads they cared about the most and to satisfy obligations by using their own labor, teams, and tools; paying taxes was only a default).

131. *Id.* at 81.

132. *Id.* at 83–86 (describing the increasing calls for better finance and planning with respect to roads).

133. *Id.* at 86–87 (showing picture of "Champion Road Grader, 1886").

134. *Id.* at 87 (describing movements to "macadamize" trunk roads).

135. *See id.* at 88 (describing "League of American Wheelmen" — "19th century Yuppies" — activities in 1899 and 1900); *see also* Richard F. Weingroff, *Highway Existence: 100 Years and Beyond, A Peaceful Campaign of Progress and Reform : The Federal Highway Administration at 100*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., [hereinafter *Highway Existence*] https://www.fhwa.dot.gov/publications/publicroads/93fall/p93au1.cfm (last modified Jan. 31, 2017) (describing bicycle campaign for improved roads).

136. Barron, *supra* note 129, at 94–95 (describing effect of automobile advocates after First World War, into the 1920s).

137. *Id. at* 89–93.

138. *Id.* at 93–94.

publicly funded jobs and thus suffered less.[139]

The first serious campaign to build a national system of national paved roads began in 1912 under the leadership of Carl Fisher, an entrepreneur in the automobile industry, based in Detroit.[140] Fisher was charismatic and had a good sense of showmanship.[141] He recruited effective public relations professionals and held meetings with businessmen around the country, promoting "Lincoln Highway," a paved road that would run from coast to coast.[142] Although the Lincoln Highway was "dedicated" in 1913, less than half of it was paved at that time, and a trip from New York to the West Coast on it took twenty to thirty days.[143]

Fisher and his allies got the Lincoln Highway built, by cajoling one state and county government after another to improve roads and to connect them.[144] Bridge-building was one of the more challenging parts of the effort because of its cost. The Lincoln Highway is today's U.S. Route 30, and its path is mostly followed by Interstate 80.[145]

Fisher, and the other advocates of government support for roadbuilding, understood that the automobile industry would benefit especially from better roads; if people could go somewhere conveniently, they would buy more cars. As early as the 1920s, the industry had become sufficiently invested in the project and began lobbying against mass transit facilities such as streetcars and suburban trolleys.[146]

In 1926, state and federal lawmakers established a Joint Board to facilitate a national roadbuilding effort.[147] The Board had no regulatory authority or funding capacity, but it successfully coordinated the implementation of a national system for numbering highways.

The United States Bureau of Public Roads was established in 1918, initially as a part of the USDA, and subsequently absorbed into the Federal Highway Administration, in 1970.[148] The Bureau of Public Roads provided

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139. LINDA LEVINE, CONG. RESEARCH SERV., R41017, JOB CREATION PROGRAMS OF THE GREAT DEPRESSION: THE WPA AND THE CCC 4 (2010).

140. Richard F. Weingroff, *The Lincoln Highway*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., (last updated June 27, 2017), https://www.fhwa.dot.gov/infrastructure/lincoln.cfm.

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.* (emphasizing that as late as 1921, only eight percent of U.S. roads were paved, even with gravel).

145. *Id.*

146. *Id.*

147. *Id.*

148. *Highway Existence*, *supra* note 135.

limited federal subsidies for specific highway projects such as bridges and tunnels.[149]

The federal Government involvement intensified during the New Deal when the Works Progress Administration used federal dollars to put people to work building aspects of the highway infrastructure.[150]

In 1918, Dwight D. Eisenhower, then a lieutenant colonel in the army, participated in a trans-continental Army excursion on public roads, aimed at building public support for a road improvement program.[151]

By the outbreak of World War II, it was possible to go almost anywhere in the settled part of the United States by automobile or truck on paved roads.[152] Still, the difficulty of passing slower traffic on two-lane roads and the delays occasioned by stoplights and stop signs at the proliferating number of intersections limited capacity of the highway infrastructure.[153]

In 1913, federal subsidies began with the Post Office Appropriation Bill, which included $500,000 for an experimental post road program.[154] In 1916 President Woodrow Wilson signed the Bankhead Bill, beginning the Federal-Aid Highway Program.[155]

Federal-Aid Highway Program funding increased in 1919, but the states responded sluggishly. In 1921, legislation addressed the major concerns

149. Richard F. Weingroff, *Milestones for U.S. Highway Transportation and the Federal Highway Administration*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., https://www.fhwa.dot.gov/publications/publicroads/96spring/p96sp44.cfm (last modified Jan. 31, 2017). *See generally* Richard F. Weingroff, *From 1916 to 1939: The Federal-State Partnership at Work*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., https://www.fhwa.dot.gov/publications/publicroads/96summer/p96su7.cfm (last modified Jan. 31, 2017) (discussing the federal aid highway program); *Federal Highway Administration*, WIKIPEDIA, https://en.wikipedia.org/wiki/Federal_Highway_Admin istration (showing from 1917 to 1941 261,000 miles of highways were built with Federal aid of $3.17 billion, with state and local governments providing another $2.14 billion).

150. *The Works Progress Administration*, PBS: THE AMERICAN EXPERIENCE, http://www.pbs.org/wgbh/americanexperience/features/surviving-the-dust-bowl-works-progress-administration-wpa/ (last visited Dec. 27, 2019).

151. Elliott Carter, *Dwight Eisenhower Was Along for the Ride from Washington to San Francisco*, WASH. POST, (July 7, 2019), https://www.washingtonpost.com/history/2019/07/07/driving-cross-country-was-crazy-idea-an-army-convoy-set-out-show-it-could-be-done/.

152. Richard F. Weingroff, *Before the Federal-Aid Highway Act of 1956: Francis v. Du Pont In Context*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., https://www.fhwa.dot.gov/highwayhistory/dupont.pdf.

153. Richard F. Weingroff, *Federal Aid Road Act of 1916: Building the Foundation*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., https://www.fhwa.dot.gov/publications/publicroads/96summer/p96su2.cfm (last modified Jan. 31, 2017).

154. *Highway Existence*, *supra* note 135.

155. *Id.*

about the Federal-Aid Highway Program.[156] "The proposal retained the federal-aid principle, but satisfied supporters of long-distance roads by restricting funds to a federal-aid system, to be linked at state lines . . . and requiring that paved surfaces should be at least eighteen feet wide."[157]

By the early 1930s, the United States received many proposals to create a network of highways. [158] President Franklin D. Roosevelt was enthusiastic about the potential highway systems because the project would create jobs.[159] Section 13 of the Federal-Aid Highway Act of 1938 tasked the Bureau of Public Roads with making a study of needs and producing a corresponding report entitled *Toll Roads and Free Roads*.[160] The report's "A Master Plan for Free Highway Development," "called for a 26,700-mile non-toll network, with routes identified on the basis of statewide surveys showing where traffic volumes were highest."[161]

World War I turned national attention to other matters, but Congress called for a "national expressway study" in 1943 by amending the Federal-Aid Highway Act.[162] In 1944 President Franklin Roosevelt sent the *Interregional Highways* report to Congress recommending increasing the rural and urban highway network.[163]

The Federal-Aid Highway Act was again expanded in 1944, to include the National System of Interstate Highways.[164] The 1944 expansion granted states the authority to determine routes with federal approval but failed to allocate funds to the expanded network.[165] Three years later, in 1947, the Public Roads Administration announced its plan for the 37,700 mile National System of Interstate Highways.[166]

Construction of the system required strong national leadership to fund it. President Dwight D. Eisenhower provided that leadership.[167] Eisenhower contrasted his experience in 1918 with his experience at the end of World War II when he saw the German autobahns.[168] He was enthusiastic about

156. *Id.*
157. *Id.*
158. *Id.*
159. *Id.*
160. *Id.*
161. *Id.*
162. *Id.*
163. *Id.*
164. *Id.*
165. *Id.*
166. *Id.*
167. *Id.*
168. *Id.*

what became the Interstate Highway System, beginning with his signing of the National Aid Highway Act of 1956 as he was running for reelection.[169]

Meanwhile, truck technology was advancing, with bigger diesel engines and sturdier semitrailers. Large trucks on interstate highways were superior to trains of eighty cattle cars confined to fixed right-of-way and having to pass through fixed classification yards to beef packing hubs.[170] Now, a cattle rancher or beef packer could arrange for point-to-point transportation of live cattle or process beef directly from ranches or feedlots to slaughterhouses and directly from slaughterhouses to packers and on to retailers or consumers.[171]

*ii. Trucks*

Good roads had little impact without vehicles to travel on them. Any vehicle must be designed around the loads it is intended to carry. The propulsion system must deliver enough power to pull the load, the body of the vehicle must be adequate to contain the load, shield it from the elements, and to tolerate opposing forces of friction and drag and those exerted by the propulsion system.[172] These basic principles determine whether the vehicle is a semi-trailer truck, a freight wagon pulled by oxen, a railroad train, or an aircraft.

Early attempts to use steam engines on roads were unsuccessful because the weight of the engine necessary to pull an acceptable load was too great for the roads to bear.[173] Once the basics of internal combustion engines, clutches, and transmissions had been worked out,[174] it was not much of a challenge for engineers to put a truck body — not much more than a wagon bed — on the back of a passenger car, turning it into a truck.

Farmers were receptive. Before automobiles and trucks became common, farmers were using a variety of small internal combustion engines for farm tasks such as running cotton gins, pumping water, churning butter, threshing

169. *The Interstate Highway System*, HISTORY, http://www.history.com/topics/us-states/interstate-highway-system. (last modified Jun. 7, 2019).

170. Hubbs, *supra* note 80, at 62.

171. *See id.* (asserting that flexibility of truck transportation facilitated establishment of modern feedlot system).

172. *See Vehicle Propulsion*, SCIENCEDAILY, http://www.sciencedaily.com/terms/vehicle_propulsion.htm (last visited Dec. 26, 2019) (explaining the propulsion system and how it relates to engines and power).

173. Merrill J. Roberts, *The Motor Transportation Revolution*, 30 BUS. HIST. REV. 57, 57–58 (1956).

174. *See id.* at 58 (noting that not only internal combustion engines, but also transmissions, clutches, and differentials were necessary developments); *see also* HAMILTON, *supra* note 4, at 45–46 (identifying key technology developments that made agricultural trucking feasible).

grain, and washing clothes.[175] Cattle farmers were among the earliest adopters of truck technology.[176]

Reliable data on the price of truck tractors during the first half of the twentieth century is not available. The price of farm tractors is available; however, and farm tractors and truck tractors are not too different in basic capability, although they look quite different. Early gasoline-powered tractors became available soon after 1900, led by the Fordson.[177] The tractors weighed between 2,000 and 3,000 pounds and cost just under $1,000.[178] By 1920, Ford cut the price of the Fordson from $625 to $395, and International Harvester followed suit.[179] Horses and mules still predominated over tractors until about 1944, however.[180]

For the most part, trucks are intended to take one trailer load of freight from an origin directly to a destination.[181] The ideal size truck for transporting live cattle from cow-calf farm to feedlot or from feedlot to the slaughterhouse is usually the biggest allowed by traffic laws. Further, the ideal truck to transport live cattle accommodates multiple beeves, giving them adequate ventilation, water, and physical support so they do not fall while in transit.

The ideal size truck for transporting sides of beef from slaughterhouses to packing plants is one that is designed to pull carcass that fully utilizes the available volume allowed by traffic laws. Likewise, trucks designed to carry frozen beef packages from the packinghouses to retailers or customers should be designed so that the volume of the trailer can be fully utilized, with the tractor whose tractive effort is sufficient to pull the corresponding weight.[182]

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175. William J. White, *Economic History of Tractors in the United States*, EH NET (Mar. 26, 2008), https://eh.net/encyclopedia/economic-history-of-tractors-in-the-united-states/ (describing the early uses of tractors by farmers in the United States).

176. *See* HAMILTON, *supra* note 4, at 59.

177. *See* White, *supra* note 175 (describing the Fordson model).

178. *See id.*

179. *See id.* (discussing how Ford initiated a price war with competitors after experiencing a "drastic" drop in sales).

180. *Id.*

181. *Truckload vs. Less Than Truckload: What's the Difference?*, FREIGHTQUOTE, https://www.freightquote.com/blog/less-than-truckload-vs-truckload-freight-whats-the-difference (last visited Dec. 27, 2019) (noting that less-than-truckload operations exist and they require terminals at which trailers can be unloaded and reloaded, a classification process not unlike that performed by rail classification yards, except at the package level rather than at the truckload or carload level).

182. *Transporting Meat and Poultry*, THE MEAT WE EAT, https://meatscience.org/TheMeatWeEat/topics/article/2017/05/30/transporting-meat-and-poultry (last visited Dec. 28, 2019).

In all cases, truck trailer size should be large enough such that transporting output away from an operation does not interpose a bottleneck, but not so large that utilization suffers from a trailer sitting around waiting to be filled because the production line represents a bottleneck.[183]

Daimler Motors, an early innovator in the cattle transportation business, listed the key truck technology developments as including: sectional steel frames and cast steel wheels, upright valves and pinions instead of belt drive, pneumatic tires, and diesel engines.[184]

The first production truck from Chevrolet, a one-ton truck introduced in 1918, was inspired by vehicles used in plants to move parts and pieces from place to place.[185] In the simplest terms, this is an example of form follows function. It was a rolling chassis featuring an open cab, an inline four-cylinder engine, and an open frame allowing customers to install the body that fit their unique needs. Later developments included drum and disk brakes.[186]

The "semi-truck" originated in as early as 1898 and aimed at hauling newly manufactured automobiles to their customers.[187] Before long, Charles Fruehauf and John Endebrock, inventors of the semi-trailer and train mobile, improved the design and structures for special purpose trailers, separate from the tractors that pulled them.[188] Fruehauf developed refrigerated trailers in

183. *How to Make a Successful Trucking Company: 7 Steps*, COMMERCIAL CAPITAL LLC, https://www.comcapfactoring.com/blog/how-to-make-a-successful-trucking-company-one-important-tip/ (last visited Dec. 28, 2019).

184. *Prime Movers: Milestones of the Mercedes-Benz Truck History from 1896 to the Present Day*, DAIMLER, https://www.daimler.com/company/tradition/truck-milestones.html (last visited Dec. 28, 2019) (listing milestones in the history of truck technology, such as six-cylinder diesel truck engines producing 120 horsepower in 1939).

185. Dale Wickell, *Classic Chevy Trucks: 1918–1959*, LIVEABOUTDOTCOM (last modified June 21, 2018), https://www.liveabout.com/classic-chevy-trucks-1918-1959-3273701.

186. *Isuzu Trucks Evolution of Truck Tech: Past, Present and Future*, ISUZU TRUCKS BLOG ( Mar. 15, 2019), http://content.isuzu.com.au/industry-insights/evolution-of-truck-tech-past-present-future/.

187. *The History of the Semi Truck*, EVAN TRANSPORTATION, INC., https://www.evantransportation.com/blog/semi-trucks/the-history-of-the-semi-truck/ [hereinafter *History of the Semi Truck*] (last visited Dec. 28, 2019). *But see* Roberts, *supra* note 173, at 60 (noting that semi-trailer and pneumatic tire were innovations from the First World War period).

188. *History of the Semi Truck*, supra note 187; *The History of Semi Trailer Trucks*, GREAT WESTERN TRANSPORTATION, https://www.gwtrans.com/the-history-of-semi-trailer-trucks/ (last visited Dec. 28, 2019); Truck Comprising Tractor and Semi-Trailer, U.S. Patent No. US3718346A (issued Feb. 27, 1973); Tractor and Trailer Construction, U.S. Patent No. 2126819A, (issued Aug. 16, 1938) (providing for increased loads within dimensional limitation of law by adding axle to trailer).

the 1920s with capacities of either four or six tons.[189]

In 1904 only 700 trucks were operating.[190] That number expanded to 25,000 in 1914 and exploded to 416,569 in 1924.[191] By 1936 a three axle[192] payload of ten tons was common, compared with fifty-five horsepower carbureted engines in 1926. Market penetration by trucks was dramatic. In 1936, trucks hauled fifty-five percent of cattle to public stockyards. In 1939, sixty percent arrived by truck; 1949, seventy-five percent; and by 1960, ninety percent.[193]

### *E. Modal Economics*

The production functions for truck and rail transportation are dramatically different. Capital costs for constructing a new line of railroad are huge, compared to the capital costs for an entrepreneur wishing to enter the trucking business.[194] This is not because it costs more to build a good railroad than to build a good highway; the opposite may be true.[195] But the difference in business economics is that the cost of railroad infrastructure is born by private enterprise, while building road networks has consistently been a task of the public sector.[196]

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189. Scott Mall, *Flashback Friday: Fruehauf Trailers Changed Trucking Forever in Freight Waves*, FREIGHT WAVES (Apr. 5, 2019), https://www.freightwaves.com/news/economics/flashback-friday-fruehauf-trailers-changed-trucking-forever.

190. Jerry Spelic, *The Early History of Semi-Trucks*, PARTNERSHIP (June 15, 2016), https://www.partnership.com/blog/post/the-early-history-of-semi-trucks.

191. *See id.*

192. *See Traffic Monitoring Guide*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., https://www.fhwa.dot.gov/policyinformation/tmguide/tmg_2013/vehicle-types.cfm (last visited Dec. 28, 2019) (describing a three-axle vehicle as two axles on the tractor, one on the semi-trailer).

193. HAMILTON, *supra* note 4, at 66.

194. *See* COMMERCIAL CAPITAL LLC, *supra* note 183 (describing various issues and costs to entering truck business).

195. Alan Kandel, *Rails vs Roads for Value, Utilization, Emissions-Savings: Difference Like Night and Day*, AIR QUALITY MATTERS (Jan. 11, 2014), https://alankandel.scienceblog.com/2014/01/11/rails-vs-roads-for-value-utilization-emissions-savings-difference-like-night-and-day/ (dictating costs in both mass transit and highway construction).

196. To be sure, much of the backbone of the real network was built with public funding in the form of land grants and government bonds, but the private, profit-seeking, railroads ultimately had to pay for it. This was not the case for trucking enterprises. To be sure, the truckers had to pay road taxes, usually in the form of fuel taxes, but the aggregate of those taxes never came close to amortizing the cost of the roads they drove their trucks on. *See* William R. Childs, *How Public and Private Enterprise Have Built American Infrastructure*, ORIGINS (Oct. 2017), https://origins.osu.edu/article/how-public-and-private-enterprise-have-built-american-infrastructure (noting how public and private enterprise have contributed to roadways and railroads).

Not only that, but the relationship between fixed and variable costs is also quite different between the two modes. The minimum economic size of a locomotive is much greater in terms of weight and horsepower — and therefore cost[197] — than the minimum economic size of a truck tractor.[198] This was especially true in the steam locomotive era. Experiments with steam tractors and other steam-driven road vehicles showed that steam engines were not feasible for these smaller vehicles.

On the other hand, a locomotive of the late nineteenth and early twentieth century could pull twenty to forty cars at a time.[199] So the cost of movement — a variable cost — per railcar as part of a reasonably sized freight train was much less than the cost of moving a truck trailer, each of which required its own truck tractor.[200] This cost advantage was offset by disadvantages associated with local freight car collection and distribution and by classification yard costs and delays, as discussed in Section III.C.

But the basic differences in cost structure for the two modes gave trucks a considerable advantage for collecting cattle from geographically dispersed locations and collecting processed beef from geographically dispersed processing plants. The retail part of the market and the distributors that fed it were geographically decentralized until the late twentieth century, and so trucks also presented an advantage for serving the retail distribution market.[201]

### *F. Timing of the Drivers*

Distinguishing the four waves requires paying careful attention to the timings of the different drivers.

Land-use frictions already were discouraging open range ranching and

197. At the turn of twentieth century, the price for new locomotives was between $20 per pound for "catalog" locomotives and $40 per pound for custom locomotives. Locoi1sa, Comment to *Price of Steam Locomotives Circa 1920's*, MODEL RAILROADER (Jan. 13. 2012, 12:16 PM), http://cs.trains.com/mrr/f/13/t/213759.aspx. A 4-4-0 locomotive at the turn of the century weighed 124,000 pounds. So, the price for a standard locomotive would have been approximately $250,000. *See 4-4-0 "American or Eight-Wheeler" Type*, MENDOCINO COAST MODEL R.R. & HISTORICAL SOC'Y, https://www.mendorailhistory.org/1_railroads/locos/4-4-0.htm (last visited Dec. 28, 2019).

198. *See supra* Part III(D)(2) (stating the cost of a farm tractor at the turn of the twentieth century was about $1,000 for a weight of 2,000-3,000 pounds); *see also* White, *supra* note 175 (noting the cost of a farm tractor at the turn of the twentieth century to be approximately $1,000).

199. *About the Engines*, R.R. EMPIRE, http://www.therailroadempire.com/about theengines (last visited Sept. 28, 2019) (noting weight each popular steam engine was capable of pulling).

200. *See* COMMERCIAL CAPITAL LLC, *supra* note 183.

201. Spelic, *supra* note 190.

long cattle drives by 1890.[202] These frictions continued and intensified throughout the twentieth century and were reinforced by the Taylor Act in 1935, which illuminated free grazing on public lands.[203] Fragmented land ownership, encouraged by the homesteading acts, railroads, and promoters of towns and cities[204] resulted in more enclosure, fencing cattle out. In the second quarter of the twentieth century, environmental concerns became more influential.[205] These concerns pushed feedlots away from population centers.

Agricultural productivity increased greatly in the twentieth century, resulting in corn surpluses which made corn attractive to feed cattle in confined feedlots.[206] The popularization of the farm tractor, the reaper, and other harvesting began in the mid-twentieth century but did not make an impact until after the Second World War.[207]

Trucking emerged as an alternative to rail transportation for short distances in the 1920s.[208] Roadway transportation rapidly expanded with improvements in truck technology and roadbuilding, while the railroads ran into economic and regulatory difficulties causing them to reduce their capabilities.[209] Roadbuilding began to make a difference by the 1930s, but

202. *See* Perritt, *supra* note 3, at 361; *see* Kelsea Kenzy Sutton, Comment, *The Beef with Big Meat: Meatpacking and Antitrust in America's Heartland,* 58 S.D. L. REV. 611, 630 (2013) (considering the impact of the meatpacking industry and the dramatic changes to the American food system because of land use protocol).

203. The Taylor Grazing Act of 1934, 43 U.S.C. §§ 315-315r (1934).

204. The Chicago, Burlington and Quincy, especially, was active in encouraging agriculture in Nebraska. It introduced alfalfa cultivation and improved seeds for the crops and held seminars on best agricultural practices. It hired recruiters to work in Eastern states and Europe to induce immigrants to come to Nebraska.

205. *See* Klitz & Miller, *supra* note 69.

206. *See* Trimble, *supra* note 74, at 225 (explaining that U.S. corn exports increased by a factor of twelve from 1852 to 1881, but some observers put the onset of the corn surplus much later in time); *see also* SLANKER GRASS-FED MEAT, *supra* note 74 (dating corn surplus to use of self-propelled combine beginning with World War II).

207. Bill Ganzel, *Beef, Feedlots & IBP*, WESSELS LIVING HISTORY FARM (2017) https://livinghistoryfarm.org/farminginthe50s/crops_08.html (showing that in 1945, just under fifty percent of cultivation still was performed by horses and mules).

208. *See* Perritt, *supra* note 3, at 398–99 (explaining that the fourth round of Creative Destruction led to a decentralized system of smaller farms and feedlots linked to regional slaughterhouses and markets by truckers, and there was no longer a need to move cattle across open ranges to transport them via railroads); Michael Billiel, Note, *Fine-Tuning Deregulation: The Interstate Commerce Commission's Use of Its General Rail-Exemption Power*, 53 GEO. WASH. L. REV. 827, 830 (1985) (finding that in the twentieth century, trucks and barges started carrying more of the railroad cargo).

209. Perritt, *supra* note 3, at 423–25; *see* Billiel, *supra* note 208, at 830 (explaining that as railroads became financially unstable, Congress was pushed into eliminating outdated regulation).

not until the Interstate Highway System beginning in the mid-1950s, did roadways and high-capacity semi-trailer trucks gain a decisive advantage over less flexible railroads.[210]

Freezing technologies relevant to beef, including flash freezing and cryogenic packaging, were not invented until the mid-1930s, and it took a generation for them to become influential in industry organization.[211] Freezing certain types of food, especially fish, however, had been practiced and received consumer acceptance long before that, beginning in the mid-nineteenth century or before.[212]

## IV. TWENTIETH CENTURY INDUSTRY STRUCTURE

After the end of the long cattle drives, beef production evolved into an industry more fragmented than in 1890.[213] The functions of the huge open range rancher have been subdivided between decentralized cow-calf operators and cattle feedlots, while the concentration of the packers has remained high and increased somewhat.[214]

The cattle rancher's consistent goal since long before the Civil War was to decrease the distance that live cattle had to be moved from where they were bred to where they were slaughtered.[215] This was not much of a

210. *Highway Existence*, *supra* note 135.

211. *See The History of NFRA*, NATIONAL FROZEN & REFRIGERATED FOODS ASSOCIATION, INC., https://nfraweb.org/about-nfra/history/ (last visited Oct. 1, 2019) (noting consumer resistances to frozen foods in the 1940s and 1950s); *see also* Perritt, *supra* note 3, at 371 (analyzing the determinants of the first two waves of Creative Destruction in the beef industry); CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 71–72 (summarizing how operating costs were reduced in the late 1950s because of the advanced highway system and new refrigeration, slaughter, and shipping technologies).

212. *The Strange History of Frozen Foods*, EATER (Aug. 21, 2014, 9:40 AM), https://www.eater.com/2014/8/21/6214423/the-strange-history-of-frozen-food-from-clarence-birdseye-to-the (describing the history of frozen foods).

213. *See* James S. Drouillard, *Current Situation and Future Trends for Beef Production in the United States of America — A Review*, 31 ASIAN-AUSTRALASIAN J. ANIM. SCI. 1007 (June 21, 2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6039332/.

214. *Id*.

215. Imagine a network comprising a set of nodes connected by directed links. Each node represents a stage in the trip a pound of beef makes from birth of a calf to the dinner table. In a simplified higher-level network, each node represents a sub-network comprising its own nodes and links. For example, the "feedlot" node in the macro-network represents hundreds of separate feedlots and the representing transport of beef between each node and its predecessor and successor. The cost variable is the arithmetic result of the cost per unit of beef afforded by transportation technology, the distance, and the quantity of beef moving through it.

Any one of the nodes can be the starting point for quantifying the variables representing

problem when beef markets were local, before Swift and Armour's innovations.[216] But a combination of scale economies and adverse political reactions to environmental effects of cattle-raising encouraged the movement of slaughterhouses and packinghouses to more remote locations and centralizing them. That led to the location of large-scale slaughterhouses and packinghouses in Chicago, while the refrigerator car enabled the slaughtered cattle to reach Eastern markets in tolerable condition.[217] Supplying the Chicago beef processing operations led to the cattle drive, which lasted only so long as most of the herds were in Texas, and public land was available for the herds to cross on their way to railheads in Kansas, Nebraska, and Wyoming.[218]

This industry organization still required long-distance transport of live beef in cattle cars, and the meatpackers now had enough capital to reorganize the industry further so industry innovators began to push to decentralize the slaughterhouse and packing operations so they could be located closer to where the herds ended up after the drive.[219] Meanwhile, the diminished availability and increased cost of land encouraged cattle ranchers to migrate north from Texas to Kansas, Nebraska, Wyoming, and Montana.[220] The combination of ranch relocation and decentralization of slaughterhouses and

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values in the network. It is possible and useful to start with the dinner-table load and make each unit of consumption one pound of cooked beef. Then, the weight for each "upstream" node can be estimated by applying a factor representing waste. For example, in shipping live beef, that factor would include cattle that die en route or become injured so that they are not edible. (*See* discussion *infra* Part V.D.) A factor of two percent is reasonable for spoilage between the packinghouse and delivery to the retail customer. So, the factor for the weight carried by the last link would be 1.01. The factor established for the transport of live animals for slaughter has been well-established for a long time. Only about forty percent of the animals going to the slaughterhouse emerge from the slaughterhouse. Another ten percent or so do not survive the trip. So, the weight factor for any link involving the transport of live animals is 2.6 (1÷.4, plus.10).

216. Perritt, *supra* note 3, at 373; *see* Barbara Krasner-Khait, *The Impact of Refrigeration*, HISTORY MAGAZINE (Feb. 2019), https://www.history-magazine.com/refrig.html (discussing how essential refrigeration was to the expansion of the meat industry).

217. Perritt, *supra* note 3, at 388; Krasner-Khait, *supra* note 216.

218. Perritt, *supra* note 3, at 397; *see* Wayne Gard, *The Role of the Cattle Trails*, 29 NEB. HISTORY 287, 299 (1958), https://history.nebraska.gov/sites/history.nebraska.gov/files/doc/publications/NH1958CattleTrails.pdf; *see also* Katie Wagner, *Tragedy of the Commons in the American West: The Cattle Boom*, ARCGIS, https://www.arcgis.com/apps/MapJournal/index.html?appid=4c90d2adcc9542f2bbc1561a42871d86 (last visited Dec. 28, 2019).

219. *See* Al Reinert, *The End of the Trail*, TEXAS MONTHLY (Nov. 1978), https://www.texasmonthly.com/articles/the-end-of-the-trail/ ("The newly simplified scheme of refrigeration promised to eliminate the cost and hazard of transporting beef on the hoof, but first the meatpacking plants had to move closer to the hooves.").

220. Perritt, *supra* note 3, at 392; *see* Wagner, *supra* note 218.

packing decreased two of the legs over which live cattle had to be moved — one of them the length of the drive where cattle removed on the hoof, and the second, the length of the train ride from railhead to processing facility.

At the same time, a feverish pace of railroad construction continuing after the Civil War, increased the number of railheads and their geographic dispersion, making it easier for large-scale ranches to be located near the railheads.

The same shortages of public land and increasing land prices for private land that made long cattle drives uneconomic also made large-scale ranching less economic.[221] By 1890, entrepreneurs realized that they should be organizing cattle breeding and feeding on smaller plots of land with greater density of cattle per acre.[222] This was possible only with a food source other than prairie grass. Exploding agricultural productivity provided the answer in the form of corn surpluses. So now the optimal organization of beef production was to locate cattle breeding and feeding near processing facilities and also near corn growing territory and to ship the refrigerated product to distant markets. Transportation costs both for the live animals and their feed were thereby minimized. When these forces reached equilibrium, the inflexibility of the railroad infrastructure represented the main constraint on the further evolution of market structure.

The structure of the beef industry fluctuated considerably through the twentieth century, though it has remained highly segmented.[223] Some segments became less concentrated, while others became more concentrated.[224] The links between adjacent segments likewise have varied in their degree of concentration.[225] Ranching — the initial stage of cattle production — became less concentrated.[226] At the beginning of the century,

221. *Id. See generally* Tom R. Troxel & Kenny Simon, *Best Management Practices for Small Beef Cow-Calf Herds,* UNIV. OF ARK. DIV. OF AGRIC., https://www.uaex.edu/publications/PDF/FSA-3117.pdf (last visited Dec. 28, 2019).

222. *Id.* at 398; U.S. CENSUS BUREAU, 1950 CENSUS OF AGRICULTURE (pt. 6), 5 U.S. DEPT. OF COMM. 69, 86 (1952) (explaining that at the beginning of the twentieth century, two-thirds of acreage in the United States were dedicated to the production and feed of livestock and poultry).

223. *See* Drouillard, *supra* note 213, at 1009 (providing a comprehensive overview of the structure of the beef industry; U.S. system of beef production is highly segmented, contrasting with highly integrated systems for pork and poultry production); *see also* In re Beef Industry Antitrust Litigation, 542 F. Supp. 1122, 1127 (N.D. Tex. 1982) (providing a diagram of the product flow in the industry).

224. Drouillard, *supra* note 213, at 1009.

225. *Id.*

226. *See* Perritt, *supra* note 3, at 392; Bill Bullard, *Under Siege: The U.S. Live Cattle Industry*, 58 S.D. L. REV. 560, 570 (2013) (reasoning that cattle's longer biological cycle makes the early stages of cattle production less adaptable to poultry, dairy, and hog's highly concentrated production model).

smaller enclosed cow-calf operations began to replace large open range ranchers.[227] By the end of the century, the segment was dominated by thousands of relatively small cow-calf operations raising a few hundred cows as a complement to other agricultural production.[228] Acquiring rights to use land in the quantities necessary for nineteenth-century style open-range ranching had become impracticable.[229]

As the nodes in the cattle network, where cattle are initially produced, became more geographically diffuse, so did the transportation infrastructure necessary to link these nodes to the nodes in the adjacent segment: cattle feedlots.[230] Indeed, the cause-and-effect relationship ran both ways: decentralization of cattle production would not have been possible without the more flexible transportation infrastructure provided by trucks operating on the expanded public highway system.[231]

Feedlots, the next stage in the production chain, where cattle are fattened or "finished" for slaughterhouses, initially were relatively diffuse geographically and decentralized.[232] Surplus corn enabled farmers to feed cattle in enclosures rather than relying on the ranchers to feed them on the grass on larger areas of range before they were shipped to the slaughterhouse.[233] Through the century, however, environmental concerns and some economies of scale encouraged the degree of concentration in the feedlot industry.[234]

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227. *See* Perritt, *supra* note 3, at 398. *See generally* Scott Michael Rank, *American West — The Cattle Industry*, HIST. ON NET, https://www.historyonthenet.com/american-west-the-cattle-industry (2019) (explaining that the invention of barbed wire and wind pumps contributed to the enclosure of cattle in the late nineteenth century).

228. *See* Perritt, *supra* note 3, at 394; *see also* Bullard, *supra* note 226, at 570 (noting that cattle and the cow-calf industry are the "meatpackers' last frontier").

229. *See* Perritt, *supra* note 3, at 392. *See generally* Ann Brower et al., *The Cowboy, the Southern Man, and the Man from Snowy River: The Symbolic Politics of Property in Australia, the United States, and New Zealand*, 21 GEO. INT'L ENVTL. L. REV. 455, 491–92 (2009) (explaining the changes in land rights and ownership were largely attributed to changing social and societal values along with the need for conservation and subdivision development).

230. *See* Perritt, *supra* note 3, at 398; William E. Rosales, *Dethroning Economic Kings: The Packers and Stockyards Act of 1921 and Its Modern Awakening*, 2004 WIS. L. REV. 1497, 1525 (2004) (discussing cattle being raised on feedlots).

231. *See* HAMILTON, *supra* note 4, at 151.

232. *See SIC 0211: Beef Cattle Feedlots*, REFERENCE FOR BUSINESS, https://www.referenceforbusiness.com/industries/Agriculture-Forestry-Fishing/Beef-Cattle-Feedlots.html (last visited Dec. 28, 2019).

233. *See* William D. McBride & Kenneth Mathews, Jr., *The Diverse Structure and Organization of U.S. Beef Cow-Calf Farms*, U.S. DEP'T OF AGRIC. 8 (Mar. 2011), https://www.ers.usda.gov/webdocs/publications/44530/7611_eib73.pdf?v=0 (last visited Dec. 28, 2019).

234. *See* Perritt, *supra* note 3, at 388–89; Trout, *supra* note 57, at 529 (highlighting

Concentration increased when beef packers established their own feedlots, organized cattle auctions between cow-calf operators and feedlots, and supplemented or replaced auctions between the feedlot stage in the cattle slaughtering stage.

Beef slaughtering and packing operations substantially decentralized in the first part of the twentieth century, as beef packers in the Chicago stockyards moved their operations closer to the locations where beef was being grown.[235] This diffusion was animated in part by entrepreneurial efforts to reduce the cost of transporting beef on the hoof, facilitated by the changes in the transportation infrastructure from rail to truck, and encouraged by the results of the Roosevelt Administration's antitrust action against the big four beef packers.[236]

As the century progressed, however, economies of scale and the growing power of retail brands encouraged concentration. The physical facilities in which slaughtering and packing operations took place remained relatively dispersed geographically but their ownership became more concentrated.

The transportation links between feedlot and slaughterhouses became much less concentrated, as the owner-operator a cattle transporter replaced the railroad. This became so by the midpoint of the century and continues to the present. Even vertically integrated processors like Cargill contract with owner-operator truckers to transport beef between nodes in their internal processing network. [237]

Although an in-depth analysis of the retail food sector is beyond the scope of this Article, the development of that sector inevitably affects the upstream industry structure. Large supermarket chains exercise considerable market power over their suppliers. This can favor popular brands of beef, which in turn favors concentrated beef packers.

The rise of e-commerce, even before Amazon got into the retail grocery business, facilitated direct packer to consumer sales of branded frozen boxed beef.[238] The boxed beef revolution not only enables eliminating separate retailers altogether, but it also makes it likely that existing retailers will eliminate their butcher operations, presenting to their consumers boxed beef

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the use of feedlots in raising cattle).

235. *See id.*; YANKEE OF THE YARDS, *supra* note 27, at 26–27.

236. *See* HAMILTON, *supra* note 4, at 136, 161.

237. *See generally Owner Operators*, CARGILL, https://www.cargill.com/transportation/cmls-owner-operators (last visited Dec. 28, 2019) (noting that owner-operators earn top rates and year-round freights with Cargill).

238. *See IBP and Boxed Beef & a New "Big Four"*, WESSELLS LIVING HISTORY FARM (2007), https://livinghistoryfarm.org/farminginthe50s/making-money/ibp-boxed-beef/ (last visited Dec. 28, 2019). *See generally* HAMILTON, *supra* note 4, at 151–62 (describing the boxed beef revolution in the industry).

that they have purchased directly from the packers.

### *A. Cow-Calf Operations*

Cow-calf operations are ranches that represent the first step in beef production.[239] They maintain cows and their calves after they are born, usually on land not suitable or needed for crop production.[240] On good grass, each animal requires about thirty acres for an entire season. Cow-calf operators' principal product is "feeder calves," which they sell to feedlots for finishing.[241]

Sixty percent of cow-calf operators sell the calves at or shortly after weaning, at between six and nine months of age, weighing 400-700 pounds.[242] Most of these are small farms located in the southeast and Southern Plains.[243] About a third of the operations, usually larger ones, continue grazing the calves for thirty to ninety days before selling them. This is called "backgrounding."[244] These operations tend to be in the Northern Plains and the West.[245]

Cow-calf operators specialize in managing herds of heifers and cows, overseeing the birth of their calves and raising the calves to the point of

239. *See* Drouillard, *supra* note 213, at 1010–11 (noting that the vast majority of cow-calf output is channeled to large commercial feedlots, although the cow-calf operator sometimes retains title to their cattle while they go through the feedlot).

240. *See id.* at 1010.

241. *See* Alane Michaelson, *How to Raise a Feeder Calf*, CAREERTREND (last modified July 5, 2017), https://careertrend.com/how-8600621-raise-feeder-calf.html.

242. *See* McBride & Mathews, Jr., *supra* note 233, at iii, 5.

243. *See id.* at 8; *see also Livestock Management*, TEX. PARKS & WILDLIFE, https://tpwd.texas.gov/landwater/land/habitats/post_oak/habitat_management/cow/ (last visited Dec. 28, 2019) ("As a general rule, moderate to light stocking rates for well-managed pastures in this area are: one animal unit (cow with calf) per 8 – 15 acres on native grass; 3 – 6 acres on tame pastures (bermudagrass/bahia grass); 50 – 75 acres on wooded areas.").

244. *See* McBride & Mathews, Jr., *supra* note 233, at iii, 5 (explaining that backgrounding after weaning eliminates the stress of transportation and provides an opportunity to acclimate calves to eat from a feed bunk, which is a long tray intended to contain feed from which cattle eat directly); *see also Keys to Success in Stocker Programs*, UNIVERSITY OF ARK. EXTENSION SERV., https://www.uaex.edu/publications/pdf/mp184/Chapter9.pdf (last visited Dec. 28, 2019) ("Stocker (growing calves on pasture) or backgrounding (growing calves using mixed feeds or stored forages) programs add value to cattle for feedlots because they desire cattle that are weaned, are from a minimum of suppliers, are familiar with feed bunks and water sources and have minimal health issues . . . . Short- term (35- to 45 -day) preconditioning programs add value to calves because these programs provide evidence the calves being marketed (1) are weaned, (2) have been processed (dehorned, castrated, dewormed and vaccinated) and (3) are familiar with feed sources.").

245. *See* McBride & Mathews, Jr., *supra* note 233, at 35.

weaning, at which time they are sold to feedlots.[246]

Margins for cow-calf operators are slim when fully allocated costs are taken into account. Many operators stay in business only because they do not account for sunk capital costs in land or herds, or because raising beef is only one of several lines of business, permitting them to share the cost of capital in land and equipment among several different activities. For example, a tractor might be used to distribute feed to cattle herds, and also used to power implements for raising corn or soybeans.

The smaller operations in the South benefit from a longer grazing season and less need for supplemental forage.[247] This feeding schedule results in lower feed costs and permits smaller operations to be sustainable. The larger operations in the Northern Plains experience higher feed costs but can compete with those in the South because of production efficiencies and economies of scale.[248]

Branding and roundups are not important, because the cattle are contained on land belonging to a single rancher. Only eighty percent of cow-calf operators use branding or ear tagging.[249]

Despite the economies of scale, expansion is inhibited because of the significant land area required for large-scale cow-calf production. "In most areas of the United States, beef cow calf production is the residual user of land. As the opportunity cost of pasture and rangeland increases for uses such as crop production and recreational activities, the size of beef cow calf operations may be limited or fragmented into smaller units."[250]

The fragmentation of cow-calf operations enabled by independent trucking was reflected by a dramatic increase in the number of possible points of sale, manifested by "the rise of hundreds of country buying stations and local auction markets."[251]

Radio broadcasting also paid an important role. Its early morning livestock market report enabled cattle farmers to seek out the market in which they could get the best price.[252]

Although there was some concentration, beef sellers and beef packers were highly fragmented. From 1992 to 1993, 88.8 percent of cow-calf

246. *See* Drouillard, *supra* note 213, at 1009.

247. *See* McBride & Mathews, Jr., *supra* note 233, at iii.

248. *See id.*; *see also* UNIVERSITY OF ARK. EXTENSION SERV., *supra* note 244, at 58 (noting that pastured cattle ultimately headed for feedlots can be fed with hay and other stored forages, are fed mixed diets comprised of fiber, corn, and other grains, or on grass).

249. McBride & Mathews , supra note 233, at iv.

250. *Id.* at iii.

251. HAMILTON, supra note 4, at 67.

252. *Id.*

operators sold fewer than 1,000 cattle, but the 152 sellers who sold at least 32,000 cattle annually accounted for forty-three percent of total sales.[253] While the number of cow-calf operations decreased fifteen percent between 1997 and 2007 and the size increased thirteen percent from thirty-eight to forty-three cattle, these changes were much less dramatic than in hog and dairy farms, where capital was substituted for land by moving large scale production into confinement facilities.[254]

The level of production is sensitive to price and the costs of feed, land, machines, calving percentages, weather, calf death loss, and length of the breeding season. The length of gestation and maturation for cattle imposes a lag in responses to changes in price and costs of the factors of production.[255]

### *B. Feedlots*

Two characteristics define feedlots: a confined enclosure; and where cattle are fed grain-based diet rather than grass.[256] The demise of open range ranching after 1885 accelerated the shift to enclosed pasturage, and corn surpluses resulting from improved agricultural productivity by the 1890s were encouraging the use of grain in the enclosures.[257] Thus, feedlots were beginning to be an important part of cattle production by the turn of the twentieth century.[258] The Chicago Stockyards were a prime example. Enclosed pens held tens of thousands of cattle, who were fed grain while they were waiting for their turns at the slaughterhouse.[259]

Grass from public lands became insufficient to feed cattle herds for three reasons. First, homesteaders and lessees enclosing public lands left fewer grasslands available.[260] Second, overgrazing meant that the number of feet

253. CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 31. *See generally* Ganzel, *supra* note 207 (discussing the historical events that caused ranching to move away from consolidation by the midpoint of the twentieth century).

254. McBride & Mathews, Jr., *supra* note 233, at 1.

255. *Id.* at 1–2; *see* Lyle Holmgren & Dillon Feuz, *2015 Costs and Returns for a 200 Cow, Cow-Calf Operation, Northern Utah*, UTAH STATE UNIVERSITY (Mar. 2015), https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1716&context=extension_curall (calculating costs and revenue for cow-calf operation and providing a sample budget to calculate varying production costs for cow-calf operations).

256. Ryan Goodman, *Ask a Farmer: What is a Cattle Feedlot?*, BEEF RUNNER (Oct. 8, 2012), https://beefrunner.com/2012/10/08/ask-a-farmer-what-is-a-cattle-feedlot.

257. *See* Hubbs, *supra* note 80, at 16–17, 21–22.

258. *Id.* at 7–8.

259. Monica Eng, *Beef Backers Steak Out Their Claim*, CHI. TRIBUNE (Nov. 11, 2009), https://www.chicagotribune.com/news/ct-xpm-2009-11-11-0911090227-story.html.

260. *Ranching,* NATIONAL GEOGRAPHIC, https://www.nationalgeographic.org/encyclopedia/ranching/ (last visited Dec. 28, 2019).

available per acre diminished sharply.[261] Third, the herds increased substantially, even as the available public lands were shrinking.[262]

Once herds had to be provided with feed, hay, or corn, it was inefficient to feed them in large spaces.[263] Transporting feed over longer distances costs more than transporting it over shorter distances. So, it began to make sense to concentrate the herds and to feed them where they were concentrated. Thus, the feedlot arose.[264]

Feedlots, as they were understood in 1890, were quite different from feedlots as they are understood in 2020.[265] In 1890 a feedlot — which probably was not called by that name — often comprised several acres; it was kind of a corral where the herd could be fed conveniently without having to be rounded up from open grasslands.[266]

By the end of the twentieth century, "feedlot" was a term of art.[267] Typically, it involved herds of cattle much more concentrated, with a higher density of animals per square foot than had been the case a century before.[268] Additionally, the food was mixed more scientifically to achieve nutritional goals and the supply of food often was mechanized.[269]

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261. Clara M. Love, *History of the Cattle Industry in the Southwest*, 19 SOUTHWEST HISTORICAL QUARTERLY 370, 390 (1916).

262. *See id.* at 376 (discussing the shrinking supply of public lands available after the spread of homesteaders and railroads across the Midwest). *See generally* Hubbs, *supra* note 80 (discussing the growth of cattle industry across the Midwest around the turn of the twentieth century).

263. Al Reinert, *The End of the Trail*, TEX. MONTHLY (Nov. 1, 1978), https://www.texasmonthly.com/articles/the-end-of-the-trail/ ("There is an axiom in the cattle business that it's always cheaper in the long run — since cattle are such awesome gluttons — to take them to their feed, instead of the reverse. Thus, Panhandle feedlots came into being when Americans began to want the kind of well-marbled, juicy, and tender meat that only a super-rich diet can develop, even on an animal as lazy as a cow. As the demand increased, the feedlot owners proved willing and able to outspend the packers for the prime young steers they intended to feed.").

264. Hubbs, *supra* note 80, at 45–46 (explaining that Gustavus Swift pioneered the cattle feedlot to facilitate decentralized slaughtering and packing of beef by developing feedlots as an intermediate feeding step between a year on pasture and slaughter).

265. *See id.* at 50–61 (highlighting differences between feedlots of the 1890s and those of the twenty-first century). *See generally* REFERENCE FOR BUSINESS, *supra* note 232 (describing the history of feedlots, including details of technology changes in 1980s and 1990s).

266. Hubbs, *supra* note 80, at 45–46.

267. *See* Goodman, *supra* note 256 (defining and describing feedlots).

268. *See* REFERENCE FOR BUSINESS, *supra* note 232 (describing the concentration of feedlot industry after 1970, which formerly had been dominated by relatively small farmers).

269. *See* CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 43 ("Feedlot cattle typically reach their slaughter weight in 3-6 months. After that there is a market window of 3–4 for delivery for slaughter.").

Feedlots buy "feeder calves" from cow-calf operators at 400–800 pounds, and sell "slaughter cows" to beef packers, at a slaughter weight of 1,000-1,500 pounds.[270] Cow-calf operators retain title to cattle on feed in feedlots in some cases, but feedlot operators assume title partially or wholly in other cases.[271] Feedlots in the modern sense did not become prevalent until after World War II.[272] The USDA says that only 5.1 percent of U.S. cattle were fed on feedlots in 1935, but that sixty-six percent were finished on feedlots in 1963.[273]

Concentration is low in the feedlot segment of the industry.[274] The big feedlots were located near highly automated slaughter and packinghouses, and the large processors began to move their facilities close to the feedlots, relying more on non-union labor.[275] A 1996 USDA study[276] concluded that packers obtain sixty-four percent of their cattle within seventy-five miles of their plants, eighty-two percent within 150 miles, and ninety-five percent within 270 miles.[277]

The limitations on the growth of feedlot size arose not from technologies of confinement, herding, or feeding but from limitations of veterinary medicine, which gradually improved, permitting economies of scale to be realized more fully.[278] Public policy also played a role, as some states adopted tax and environmental policies favoring feedlots, but others sought to discourage them. The result was a considerable shift westward.[279]

As the ethanol industry has risen, distilled grain from ethanol refineries has become an important feedlot input, pulling feedlots closer to the

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270. *See USDA Terms and Definitions*, BEEF2LIVE (Sept. 18, 2019), https://beef2live.com/story-usda-cattle-terms-definitions-85-143143 (defining feeders as "young steers or heifers, weighing approximately 400-800 pounds"); Brian McMurry, *Cow Size is Growing*, BEEF (Feb 1, 2009), https://www.beefmagazine.com/genetics/0201-increased-beef-cows (stating that the average size of a full-grown cow is now estimated to be around 1,350 pounds).

271. REFERENCE FOR BUSINESS, *supra* note 232.

272. Ganzel, *supra* note 207.

273. *Id.*

274. *See* Drouillard, *supra* note 213, at 1012 (reporting sixty-one percent of 26,586 feedlots in the U.S. "have fewer than 100 cattle," and seventy-seven percent of cattle are produced by feedlots having a "capacity greater than 1,000 animals").

275. *See* Ganzel, *supra* note 207.

276. CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 5.

277. *See id.* at 5, 21–22 (providing additional statistics).

278. *See* Hubbs, *supra* note 80, at 56–61 (identifying diseases and conditions that veterinary medicine had to address for large-scale feedlots to be successful).

279. REFERENCE FOR BUSINESS, *supra* note 232 (describing geographic shift of feedlot industry from Midwest to southern plains states: Texas, Nebraska, Kansas, and Colorado).

refineries, and generally concentrating more of the feedlot industry in the Midwest. In 1996, large packing plants obtained nearly half their cattle from large feedlots, while smaller plants obtained less than a quarter from large feedlots.[280]

Towards the end of the twentieth century, the role of public markets such as auctions and terminals declined in favor of packer purchases directly from producers and captive supplies as a result of vertical integration and vertical coordination agreements.[281] Packers primarily purchase cattle on the spot market rather than through futures or forward markets or marketing agreements.[282]

### *C. Beef Processing*

Beef slaughtering and packing operations[283] centralized, mainly in Chicago, during the nineteenth century. One of the most dramatic phenomena of the twentieth century was the decentralization of beef packing to facilities located closer to cattle feedlots.[284] Ownership, however, remained centralized.[285] Cudahy was the first of the big four packers to recognize that:

> [T]here were economies to be had if they moved away from the urban stockyards closer to the source of their raw materials. They realized it was cheaper to locate a packinghouse close to the new large feedlots, buy cattle directly and ship the meat in quarters of beef rather than paying for shipping the live animals to an urban market. Cudahy was the first packer to move away from Chicago.[286]

Live cattle are transported to the processing facility as quickly as possible, spending only minutes in a truck trailer, rather than hours or days in a railroad

280. *See* CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 6; In re Beef Industry Antitrust Litigation, 542 F. Supp. 1122, 1131–40 (N.D. Tex. 1982) (describing how pricing works in the competitive market for slaughter beef).

281. *See* CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 12.

282. *See id*. at 6, 31–32, 42. ("Packers may contract for future delivery of livestock through an exclusive marketing agreement with individual feedlots, in which price is based on market prices at the time of slaughter. Packers may also purchase cattle through forward contracts in which price is specified in advance or is based on futures prices or some other formula.").

283. To facilitate less cumbersome discussion, the text conflates these conceptually distinct functions into "beef packing."

284. *See* Joshua Spect, *The Price of Plenty: How Beef Changed America*, THE GUARDIAN (May 7, 2019), https://www.theguardian.com/environment/2019/may/07/the-price-of-plenty-how-beef-changed-america ("Decentralising slaughter would make wholesale butchering again dependent on local knowledge that the packers could not acquire from Chicago.").

285. Ganzel, *supra* note 207.

286. *Id.* (reporting decentralization by Cudahy).

stock car.[287] After slaughtering, the sides of beef spend three weeks or more in a refrigerated locker to "age."[288] The sides of beef are then subdivided into major muscle groups and conventional cuts before undergoing another aging process for forty days.[289] Each cut is individually packaged in a heavy custom-formed "cryo-vac" packaging and then blast frozen in a vacuum.[290] The frozen cuts are kept in a negative forty-five degrees Fahrenheit cold-storage locker that maintains humidity. Shipments occur directly from the locker.[291]

Flash freezing involves exposing beef to temperatures well below the freezing point of water, typically at negative forty degrees Fahrenheit.[292] Flash freezing results in smaller ice crystals, which do less damage to the beef molecules than larger crystals.[293] When slow-frozen beef thaws, the damaged tissue leaks into the interstices left by the ice crystals, resulting in a mushy consistency and taste.[294] This does not happen with flash-frozen food. The technique was developed by Clarence Birdseye in the early twentieth century,[295] popularized in "TV Dinners" beginning in 1954,[296] and refined by Daniel Tippmann, who used a vacuum and passed supercooled air through pallets of cut beef.[297] Consumer acceptance of frozen beef lagged, however, until the late 1950s and 1960s.[298]

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287. *See* Steve Johnson, *Flavor in a Flash! – Fresh Frozen vs. Frozen Foods*, NEB. STAR BEEF (Aug. 16, 2018), https://www.nebraskastarbeef.com/kind-frozen-fresh-frozen-vs-frozen-foods/ (noting Nebraska Star Beef's processing facility is located near their cattle feedlots).

288. *Id.* (discussing harvested carcasses spend "at least twenty-one days in a locker" as the first part of Nebraska Star Beef's aging process).

289. *Id.*

290. *Id.*

291. *See id.*

292. *Id.* (describing the flash-freezing process, which freezes meat nearly instantaneously).

293. Martha Zepp, *Understanding the Process of Freezing*, PENN STATE EXTENSION (last modified May 3, 2018), https://extension.psu.edu/understanding-the-process-of-freezing (explaining "large ice crystals punch through cell membranes," which results in a loss of liquid when thawing).

294. *See* Johnson, *supra* note 287 (noting food frozen over a longer period of time does not maintain its freshness).

295. *See* U.S. Patent No. 1,773,079 (filed June 18, 1927); U.S. Patent No. 1,773,080 (filed June 20, 1927); U.S. Patent No. 1,773,081 (filed June 18, 1927).

296. *The Strange History of Frozen Foods*, EATER (Aug. 21, 2014, 9:40 AM), https://www.eater.com/2014/8/21/6214423/the-strange-history-of-frozen-food-from-clarence-birdseye-to-the (describing the history of frozen foods, after Birdseye's invention).

297. U.S. Patent No. 12/879,521 (filed May 12, 2011).

298. *The History of NFRA*, NATIONAL FROZEN & REFRIGERATED FOODS ASS'N, INC., https://nfraweb.org/about-nfra/history/ (last visited Oct. 1, 2019) (noting consumer

The boxed beef phenomenon began in 1960 with the Iowa Beef Packers.[299] Iowa Beef "built a completely new plant in Dennison, Iowa, close to big feedlots and cheap energy sources. The sprawling plant was all on one floor so that the beef carcasses could be moved around on conveyers. Immediately after the animal was killed, the beef was refrigerated and the rest of the process was done in the cold. That reduced the shrinkage of the meat from dehydration."[300]

"It was a natural progression from the efficiencies of shipping carcasses to shipping boxed beef. There is a lot of wasted space in a modern truck or rail car filled with chilled sides of beef. A side of beef has an awkward shape — it can't be neatly packed, and a side has a lot of bone and trim that will never go into the meat case. It was logical to move to boxed beef."[301]

In 1992, the four largest packers accounted for eighty-two percent of beef slaughter, up from thirty-six percent in 1980.[302] A 1996 USDA survey of fifteen slaughter and packing plants showed an average slaughter rate of 216 head per hour for slaughter-only plants and 273 head per hour for slaughter and fabrication plants.[303] The same study showed significant diseconomies of scale in packing operations.[304]

Packers make cattle purchase decisions daily. Part of daily cattle purchase choices is the balance among cattle purchased in the spot, cash market, cattle purchases committed to under marketing agreements, and cattle committed to in futures or forward contracts.[305]

### *D. Labor Markets*

The labor markets for cowboys as herders have changed dramatically over the century; the labor markets for slaughterhouse and packinghouse workers have remained the same. The functions performed by the nineteenth-century cowboy now are performed by three different occupations: cowboys and

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resistances to frozen foods in the 1940s and 1950s).

299. Ganzel, *supra* note 207 (reporting that shipping boxed beef directly to consumers originated with Iowa Beef Packers in 1960).

300. *Id.*

301. *See id.* (quoting IBP executive Dale Tinstman); s*ee also* Drouillard, *supra* note 213, at 9 (reporting that most of the output of beef packing industry is distributed in the form of boxed beef).

302. *See* CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 13; *see also id.* at 31 (stating that the big three firms — ConAgra, Excel, and IBP — accounted for seventy-five percent of the market).

303. *See id.* at 53.

304. *See id.* at 55 (chain speeds, as a measure of output, decreased with increasing plant size).

305. *Id.* at 44 (describing the elements of the decision).

ranch hands, feedlot herdsmen, and cattle truck drivers.

The Indeed.com job board advertised for 108 "cattle farm" positions on July 31, 2019[306] and 745 for "cowboy."[307] By way of comparison, the same job board had 157,589 ads for "truck driver" on the same date[308] and 24,642 for "construction worker."[309] The job descriptions mostly required the ability to perform general farm duties as well as those associated specifically with cow-calf operations.[310]

A USDA sponsored study of cow-calf operation costs[311] showed labor inputs varying between two and four hours per bred cow for paid employees and twelve to twenty-two hours per bred calf for unpaid labor (proprietors).[312] This is consistent with small-farm operations that employ workers outside the family only sporadically.

Indeed.com had ninety-two "feedlot jobs."[313] For example, the ad for Bull Creek in Le Mars, IA was indicative of similar ads: "New Progressive cattle feedlot in Northwest Iowa between LeMars and Akron Iowa looking for Pen Riders/walkers/feeding/processing. Must have experience and the willingness to learn. Must be good with people and a good team player; come join our team!"[314] Compensation for feedlot workers was similar to that for cow-calf operation employees, ranging from $25,000 to $50,000 annually.[315]

Feedlots employ substantial numbers of cattle herders, still known as "cowboys." They wear cowboy hats, cowboy boots, ride horses, and use

306. *Cattle Farm Jobs, Employment*, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/q-Cattle-Farm-jobs.html.

307. *Range Cowboy Cow Calf*, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/jobs?q=cowboy&l&vjk=3be0f9cd0730a8a8.

308. *Truck Driver Jobs*, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/jobs?q=truck+driver&l=.

309. *Construction Worker Jobs*, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/q-construction-worker-jobs.html.

310. Full Time Farm Hand, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/q-Cattle-Farm-jobs.html?advn=2540334193340019&vjk=cad1d999826242b4 (last visited July 31, 2019); Range Cowboy Cow Calf, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/jobs?q=cowboy&l&vjk=3be0f9cd0730a8a8.

311. Sara D. Short, *Characteristics and Production Costs of U.S. Cow-Calf Operations*, U.S. DEP'T OF ARGIC. (Nov. 16, 2001), https://www.ers.usda.gov/webdocs/publications/47150/16084_sb974-3_1_.pdf?v=0.

312. *Id.* at 7 (charting "labor efficiency" in Table 1).

313. *Feedlot Jobs*, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/jobs?q=feedlot&l=.

314. *Id.*

315. *See* Farm Hand/Laborer, INDEED.COM (Oct. 1, 2019), https://www.indeed.com/jobs?q=feedlot&l&vjk=970fc5da99540581.

their horses to herd the cattle.[316] The average number of employees per feedlot "increased from 10.36 in 2010 to 15.31 in 2015."[317] The number of cattle per full-time employee increased from 1,000 in 2004 and 2010 to 1,095 in 2015.[318] One quasi-credible report says that there were some 10,000 workers in the field of "support activities for animal production," and that the annual salary was only about $20,000 annually.[319]

Recruiting is limited by a lack of work ethic, attracting people to rural areas, and attracting employees willing to work more than forty hours per week.[320] The early twentieth-century trucking labor force was comprised mostly of farm boys and young men from country villages "willing to work unconscionably long hours at low pay just to be working at all," thereby satisfying an increasing demand for farmers who wanted to ship more cheaply by truck than by rail.[321] Trucking offered a chance to remain in the country while, at least theoretically, becoming the owners of small businesses rather than factory hands deprived of their independence."[322] Many farmers also owned their own trucks and thus starting a trucking operation to haul others' freight did not require any capital outlay.[323]

Often, they priced below cost, because they were ignorant of concepts such as depreciation and kept poor track of actual expenses.[324] The result was an intensification of the competitive pressure on railroads and unionized truckers.[325]

In the twenty-first century, owner-operators are mostly truck-load carriers. They have been in the trucking business for an average of twenty-six years,

316. *See* Kansas Beef, *Pen Riders – The Feedlot Cowboys*, YOUTUBE (June 12, 2018), https://www.youtube.com/watch?v=yxaLh0KRn60 (explaining the role of feedlot cowboys, responsible for 17,000 heads of feed in a floodlit); *see also* JBSUSA1, *JBS Five Rivers Careers*, YOUTUBE (Sept. 9, 2015), https://www.youtube.com/watch?v=R3pfbbLC-9Y (attempting to recruit feedlot cowboys).

317. Jacob Birch & Kathleen Brooks, *2015 Nebraska Feedyard: Labor Cost Benchmarks and Historical Trends*, INST. OF AGRIC. & NAT. RESOURCES (2015), extensionpublications.unl.edu/assets/html/ec836/build/ec836.htm.

318. *Id.*

319. Oswald J. Eppers, *Modern Cowboy Jobs — More than Campfire Romantic*, STREET DIRECTORY, https://www.streetdirectory.com/travel_guide/189244/careers_and_job_hunting/modern_cowboy_jobs__more_than_campfire_romantic.html.

320. Birch & Brooks, *supra* note 317, at 5. *But see* Perri Capell, *Cowboy as a Career?*, WALL ST. J. (June 14, 2005), https://www.wsj.com/articles/SB11187067 3562958624 (reporting on an interview with a cowboy who disagrees with the conventional wisdom that being a cowboy is one of the worst occupations).

321. HAMILTON, *supra* note 4, at 47.

322. *Id.*

323. *Id.* at 48.

324. *Id.* at 50.

325. *Id.* at 51.

and were thirty-seven years old, on average when they became an owner-operator.[326] Their average age is fifty-five, eighty-six percent have a high school diploma, and they earn on average $50,000 per year.[327]

The nineteenth-century cowboy transported cattle by driving them on the hoof from the open range to railheads. The twentieth-century cowboy was an independent owner-operator trucker who transported cattle from cow-calf operations to feedlots and from feedlots to slaughterhouses. The ratio of the cowboy to beef was much higher in the trucking context than in the long cattle drive context. Roughly a dozen cowboys could handle a herd of a couple of thousand cattle.[328] Each semitrailer truck requires a driver and can accommodate roughly twenty-five cattle, depending on their weight. But trucks drive considerably faster than cattle can walk, and the distance over which cattle are trucked is shorter than the distances of the long cattle drives.[329] The speed of transport is a product of technology. Decreased distance is a product of the decentralization of the beef industry.

Word-of-mouth was an important recruiting and job search tool in 1875, and it remains so today. A young man seeking work as a cowboy could go to town, ask around, and pretty quickly find out who was hiring. A young man or woman in 1990 could ask around wherever cattlemen gather — at auctions and shows. Now, course, word-of-mouth occurs via email, Internet websites,[330] and social media.

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326. *Owner-Operator and Professional Employee Driver Facts*, OOIDA FOUND., https://www.ooida.com/OOIDA%20Foundation/RecentResearch/OOfacts.asp (last visited July 31, 2019) (showing the data presented in the text relates to all owner-operators, but there is no reason to believe that the demographics for cattle truck drivers differ).

327. *Id.*

328. *Cowboys*, HISTORY (Apr. 26, 2010), https://www.history.com/topics/westward-expansion/cowboys.

329. A reasonable representation for labor productivity in transporting cattle is beef-miles-per hour. A large cattle herd travels at a bit less than two miles per hour. If a herd comprises 2,000 cattle, that is 4,000 beef-miles-per-hour divided by twelve cowboys, showing that each cowboy produces 333.33 beef miles per hour. A cattle truck transporting fifty beeves at forty-five miles per hour produces 2,250 beef miles per hour, which represents the labor productivity of its driver. So, labor productivity for this branch of cowboy has increased nearly tenfold in the last century and a half. *See* Philip K. Thornton, *Livestock Production: Recent Trends, Future Prospects*, 365 PHIL. TRANSACTION ROYAL SOC'Y B BIOLOGICAL SCI. 2853–67 (2010), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2935116/.

330. *Drive For Us*, STEVE'S LIVESTOCK TRANSPORT, http://www.slt.ca/drive-for-us/ (last visited Oct. 29, 2019) ("Steve's Livestock Transport, North America's largest commercial livestock transportation company, has immediate opportunities for motivated owner-operators and company drivers who want to advance their careers and help keep the economy moving. If you are looking for purposeful work, love being on the road and are eager to contribute to one of today's most important industries as part of a company that truly cares, join us!"); *Livestock Trucking*, INDEED.COM,

Then, as now, site visits supplemented word-of-mouth. A cowboy looking for work in 1875 would visit a series of ranches, inquiring at each whether the ranch was hiring. He might also visit loading docks at railheads and see if anyone was hiring cowboys to accompany the cattle in the stock cars on their way to slaughter and packing houses. Today he can drive around to different facilities looking for work, but he also can do virtual site visits. A firm that is actively recruiting is likely to have a notice to that effect on its website. In addition, job boards provide clearinghouses for independent truckers.[331] Any shipper or consignee desiring truck transportation can post a notice on one of these boards, and any owner-operator can respond by submitting a bid.

Labor union organization is nonexistent in all three labor markets, except for a handful of cattle truck drivers who are classified as employees of trucking companies hauling general freight and thus outside the agricultural exemption.

## V. LAW'S IMPEDIMENTS

The agricultural exemptions in the Interstate Commerce Act and the National Labor Relations Act allowed the beef industry to develop relatively free of governmental regulation.[332] Market forces thus determined the industry structure to a greater extent than was possible in other American industries.[333]

Law can influence Creative Destruction in several ways. It can be one of the causes, as when homesteading laws helped bring about the destruction of the long cattle drive.[334] It can seek to block the technologies that cause Creative Destruction, as some people propose with respect to Artificial

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https://www.indeed.com/q-Livestock-Trucking-jobs.html (last visited Oct. 29, 2019) (listing 58 independent cattle trucking positions); *Owner Operators*, CARGILL, https://www.cargill.com/transportation/cmls-owner-operators (last visited Oct. 29, 2019).

331. *See Load Board*, LIVESTOCK NETWORK, https://www.livestocknetwork.com/Cattle_Loads/ (last visited Oct. 29, 2019); *see also Livestock Haulers*, LIVESTOCK TRANSPORT, http://www.livestock-transport.com/hauler/ (last visited Oct. 29, 2019) ("Search Haulers. They are here to get you on your way.").

332. Kirsten Zerger, *The NLRA Agricultural Exemption–A Functional or Mechanical Approach?*, 2 INDUS. RELATIONS L. J. 131, 137 (1977).

333. Savannah Kuper, *The Politics Behind America's Industrial Meat Industry*, CLIMATE CHANGE, FOOD, SOCIAL ISSUES (Apr. 2, 2014), https://edblogs.columbia.edu/scppx3335-001-2014-1/2014/04/02/the-sham-of-meat-politics/.

334. *See* Perritt, *supra* note 3, at 409; Ray H. Mattison, *The Hard Winter and the Range Cattle Business*,1 MONT. MAG. HIST. 5, 5, 21 (1951) (discussing changes in the cattle industry).

Intelligence and robotics.[335] It can retard adaptation, as in the case of economic regulation under the Interstate Commerce Act,[336] some aspects of collective bargaining, and some interpretations of competition law.[337]

In the nineteenth century, property law helped spawn and subsequently extinguish the long cattle drive.[338] Open range law combined with railroad technology and refrigerator car technology gave rise to enormous ranches on public lands in Texas from which cattle were driven on the hoof to railheads in Kansas, Nebraska, and Wyoming.[339] Within about fifteen years, however, homesteading law combined with steel-plow, windmill, and barbed-wire-fence technologies, brought the long cattle drives to an end.[340] The high-point of open-range ranching occurred in 1885.[341] Thereafter, technology development and other legal regimes shaped further waves of Creative Destruction, and the industry structure that emerged as an adaptation to them.[342] During this period, however, the period from the last decade of the nineteenth century to the end of the twentieth century, the law was not so much a driver of Creative Destruction or a facilitator of adaptation as it was a potential impediment.[343] The beef industry largely avoided these impediments because of special exemptions for the agricultural sector, including the beef industry.

The law played a significantly different role in the third and fourth waves

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335. *See* Mara Hvistendahl, *Can We Stop AI Outsmarting Humanity?*, THE GUARDIAN (Mar. 28, 2019), https://www.theguardian.com/technology/2019/mar/28/can-we-stop-robots-outsmarting-humanity-artificial-intelligence-singularity (highlighting perceived dangers of AI as a threat to humanity and summarizing arguments for prohibiting "super intelligent" AI).

336. *See* discussion *infra* Part 0.

337. *See* discussion *infra* Parts 0., 0.

338. *See* Perritt, *supra* note 3, at 408; Terry L. Anderson & P.J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 163, 170–72 (1975) (providing a history of the impact of western migration on land use and the development of property law to control unwanted intrusions and expansions onto private property by cattlemen and sheepherders).

339. Perritt, *supra* note 3, at 364–365; *see* Terry L. Anderson & P.J. Hill, *Cowboys and Contracts*, 31 J. LEGAL STUD. 489, 499 (2002) (noting the associations that developed among cattlemen facilitated cattle drives, but this was then undone by a change in property laws).

340. Perritt, *supra* note 3, at 392; Valerie Weeks Scott, *The Range Cattle Industry: Its Effect on Western Land Law* 28 MONT. L. REV. 155 (1967) (identifying the relationship between the Homestead Act of 1862 and other pressures that led to the decline of large cattle drives).

341. Perritt, *supra* note 3, at 392 n.139; Mattison, *supra* note 334, at 5–7 (explaining that 1885 was the apex of free-range cattle).

342. Perritt, *supra* note 3, at 365.

343. Perritt, *supra* note 3, at 403.

of Creative Destruction than it played in the first and second.[344] The first wave was facilitated by public land law that permitted ranchers to cultivate herds numbering thousands to hundreds of thousands of acres of land for free.[345] The same land law permitted long cattle drives without the need to pay transit fees or to confront legal claims of trespass.[346]

In the second wave, the law closed off the long cattle drives by granting exclusive rights in the hitherto public land for very low prices, drawing hundreds of thousands of homesteaders to what had been rangeland.[347] The legal framework essentially abstained from addressing disputes between the drovers and the homesteaders, requiring them to fall back on self-help measures, including organized violence and numbers at polling places.

In the third and fourth waves, the law played a potential and pernicious role, by distracting market participants from reality, in the case of antitrust law, or by seeking to retard adjustment to new technologies, in the case of economic regulation and labor law.[348] The beef industry benefited from exemptions from much of this influence.

### *A. Economic Regulation*

The most important legal doctrine shaping the twentieth-century beef industry was the agricultural exemption to truck regulation. The exemption allowed independent owner-operator truckers to develop a flexible transportation system to support the dispersed activities of cow-calf operators and feedlots and to link them with more concentrated beef packers.[349] The agricultural exemption in the Interstate Commerce Act

344. *See generally* Perritt, *supra* note 3 (providing background information on the four waves of Creative Destruction); JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY (1942) (outlining the process of Creative Destruction).

345. *See* Perritt, *supra* note 3, at 401 (sharing that the federal government "allow[ed] free grazing and traversing of the public lands, which comprised most of the plains states"); *see also* Karen R. Merrill, *Whose Home on the Range?*, 27 W. HIST. Q. 433, 435 (1996) (highlighting that "ranchers were able to graze their animals for free, and . . . build up enormous operations").

346. *See* Perritt, *supra* note 3, at 401 (citing Merrill, *supra* note 345, at 433) (clarifying that "Texas cattlemen could . . . enjoy free feed and free transport from their Texas ranches to the railheads in Kansas and further north"). *See generally* Scott, *supra* note 340 (discussing open-range cattle industry in the western United States between 1864 and 1900).

347. *See* Perritt, *supra* note 3, at 401 (suggesting that the government's "policy was the encouragement of smaller-scale settled farming under the Homestead Act of 1862"); Scott, *supra* note 340, at 177.

348. *See* Perritt, *supra* note 3, at 401–26 (providing background information on the law's role in the waves of Creative Destruction); *see, e.g.*, Wayne D. Collins, *Trusts and the Origin of Antitrust Legislation*, 81 FORDHAM L. REV. 2279, 2317–32 (2013).

349. *See* Motor Carrier Act of 1935, Pub. L. No. 74-255, §§ 203(b)(4a)–(4b), (6), 49

allowed independent trucking to develop in a way that supported the dispersion of cow-calf operations and feedlots, something that would have happened to a much more modest extent, if it happened at all, under the economic regulatory regime applied to the rest of the trucking industry and railroads.[350]

The architects of economic regulation under the Interstate Commerce Act explicitly intended to use it to block Creative Destruction in the beef industry.[351] The industry escaped the potential obstructionist effects of ICC regulation by obtaining and protecting the agricultural exemption.

Trucking began at the local level.[352] Merchants and manufacturers began to substitute light trucks for animal-drawn wagons, and as their trucks had excess capacity, they offered haulage to others. Truck transport was a local phenomenon because the only adequate roads were local.

Availability of truck transportation and its price tended to fluctuate widely depending on how much excess capacity truck owners had after they hauled their own goods. Prices were low because the owner's principal businesses had already covered the capital costs of the trucks.

As the industry grew with improved roads, higher capacity trucks, and growing dissatisfaction with railroad service, patterns of localization and byproduct-pricing persisted. Scheduled, over the road, operations developed later than local cartage. While shippers and consignees wanted stability in the provision of over the road services, the less formal, ad hoc nature of contract relationships continued in the local cartage part of the market.

Support for the regulation of trucking came from three sources.[353] First, it came from shippers and consignees who wanted to stabilize the market. They were interested in reducing the incidence and frequency of entry and exit. Second, established truckers wanted to protect their market share against new entrants, particularly those who charged lower rates. Third, the railroads were fighting to forestall competition from a new mode that was

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Stat. 543; HAMILTON, *supra* note 4, at 58 ("[T]he exemption primarily served its intended function: it helped individual farmers . . . haul . . . livestock to market more cheaply than they could via railroad or regulated trucks.").

350. *See id.*

351. Interstate Commerce Act, Pub. L. No. 49-41, 24 Stat. 379 (1887); *see* Thomas Gale Moore, *Trucking Deregulation*, LIBRARY OF ECON. & LIBERTY: CONCISE ENCYCLOPEDIA OF ECON., https://www.econlib.org/library/Enc1/TruckingDeregulation.html (last visited Oct. 29, 2019) (highlighting the negative consequences of the Interstate Commerce Act that likely would have inhibited Creative Destruction in the beef industry if trucking had not undergone deregulation after the Act's passage).

352. Roberts, *supra* note 173, at 59 (citing C. H. Spencer, *Business Getters for Small Concerns,* 108 SCI. AM. 76 (1913)) (conveying that local trucking came first, with delivery radii of up to fifty miles, compared with ten miles for horse-drawn vehicles).

353. Moore, *supra* note 351.

more efficient and therefore, if left to the market, could both charge lower prices and provide better service — up to certain stage lengths.[354]

Regulation entered the picture because the railroads understood the competitive economics analyzed in Section III.E. The Interstate Commerce Act and the Interstate Commerce Commission established a legal regime well-suited to discouraging trucking of beef.[355] Both railroad companies, who sought to eliminate "ruinous competition", and the Granger movement, which sought reduced rail transportation rates, initially favored the Interstate Commerce Act. [356]

Moreover, established truckers favored regulation as a barrier to new entry and low-cost competition. After the enactment of the Motor Carrier Act of 1935,[357] both defenders of the status quo and opponents of innovation had a powerful vehicle to advance their interests.[358]

The principal objectives of the regulatory regime were to set a floor under rates, prohibiting rate cutting, and restricting entry of new operators.[359] The railroads, the Teamsters Union, and Teamster-organized trucking carriers pushed for regulation that would limit the effects of competition, as part of the New Deal.[360] Secretary of Agriculture, Henry A. Wallace, however, recognized that fragmented trucking featuring independent drivers could help "undermine the monopoly power of railroad-based food processors," and he successfully spared agricultural trucking from the regulatory regime applicable to trucking in general.[361]

Even as the Teamsters developed into a national behemoth, the agricultural exemption — Section 203B of the Motor Carrier Act — exempted truckers hauling farm products from the regulatory regime that empowered the Teamsters.[362]

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354. *See generally* Paul Steven Dempsey, *Interstate Trucking: The Collision of Textbook Theory and Empirical Reality*, 20 TRANSP. L. J. 185 (1992) (providing a helpful discussion of the adverse effects of deregulating the trucking industry).

355. Moore, *supra* note 351.

356. *See id.*

357. *See* United States v. Am. Trucking Ass'n, 310 U.S. 534, 538–41 (1940) (summarizing the legislative history of the Motor Carrier Act of 1935).

358. *See generally* Maurer v. Hamilton, 309 U.S. 598 (1940) (adjudicating the preemption controversy over challenges to higher capacity automobile carriers).

359. *See* HAMILTON, *supra* note 4, at 53–54 (discussing the barriers to entry, and the regulation of trucking rates).

360. *See id.* at 53 (explaining how the evolution of transportation regulation during the New Deal created a "highway transportation market [that] was defined more by government policy than by purely economic motives").

361. *Id.* at 44.

362. *See id.* at 55–56 (discussing the growth of the Teamsters, and the "agricultural exception" found in the Motor Carrier Act of 1935).

Cattlemen in the 1930s "turned . . . to unregulated trucking as a tool for challenging the Packers control over live cattle prices."[363] By the 1930s, cattle producers who dominated the National Cattlemen's Association were not ranchers commanding huge expanses of land in the West; they were Corn Belt producers, who usually fed fewer than a couple of hundred cattle, incidental to the farming operations. Their profitability depended upon careful monitoring and tactics taking advantage of fluctuations in the prices for beef and commodity prices. They had to be nimble.[364] They were instinctively strongly opposed to government intervention, even if it was advertised as likely to stabilize their incomes.[365] Independent trucking offered them a way to seek profits without the burdens of governmental bureaucracy.[366]

Spokesmen for the trucking industry argued that the economics of trucking were ill-suited for regulation — making most of the same arguments that led to the deregulation of the industry in the mid-1970s. They were right. Both entry and exit in the trucking industry are easy. To enter the market, all an entrepreneur needs to do is buy or lease a truck, find someone who wants to ship something, and he is in business. If the occupation doesn't pay or otherwise doesn't suit him, the trucker can sell the truck in a robust secondary market and not be too much worse off when he undertakes a different occupation.[367] The result of these realities is a considerable amount of churn in the identity of suppliers of trucking services. Prices tend to be wildly unstable because some independent truckers are ignorant about depreciation and amortization of capital costs, while others have a profitable base of traffic and want to supplement it by filling up backhauls or otherwise keeping the marginal cost close to zero.

The concept of economic regulation for trucking was born into the politics of anti-competition. As regulation sank its teeth into the industry it worked, as it was continuing to work with respect to rail transportation, as a powerful antidote to innovation. An operator that wanted to offer new technologies was opposed and eventually thwarted by those wanting to protect the status quo. Those offering lower prices because they had adopted new technology were thwarted as well. Not only the railroads used political levers of the ICC

363. *Id.* at 63.

364. *See* Drouillard, *supra* note 3, at 1008, 1010 (clarifying that market and weather conditions have a major impact on "the age at which cattle are placed into feedlots").

365. *See* HAMILTON, *supra* note 4, at 64 (examining the factors that contributed to cattlemen's opposition to "government regulations on livestock marketing").

366. *See id.* at 65 (suggesting that cattlemen "found trucks to be more effective for boosting incomes than government" regulations).

367. *See* Dempsey, *supra* note 354, at 193–94.

against the truckers, but the truckers also used them against railroads.[368] The less efficient and less inventive producers in both industries used them to protect against their more nimble and innovative competitors. The beef industry escaped all this because of the agricultural exemption from economic regulation.

*East Texas Freight Lines, Inc. v. Frozen Food Express*,[369] arose when three motor carriers filed a complaint against a competing carrier, alleging that its competitor's transportation of fresh and frozen meats in interstate commerce without a certificate of convenience and necessity violated the Interstate Commerce Act.[370] The Commission agreed, holding that the frozen items were not within the agricultural exemption.[371] The district court invalidated the Commission's order, holding that the commodities were within the exemption, and the Supreme Court agreed.[372]

The Court reasoned:

> It is plain from this change that the exemption of 'agricultural commodities' was considerably broadened by making clear that the exemption was lost not by incidental or preliminary processing but by manufacturing. Killing, dressing, and freezing a chicken is certainly a change in the commodity. But it is no more drastic a change than the change which takes place in milk from pasteurizing, homogenizing, adding vitamin concentrates, standardizing, and bottling. Yet the Commission agrees that milk so processed is not a 'manufactured' product, but falls within the meaning of the 'agricultural' exemption. 52 M.C.C. 511, 551. The Commission also agrees that ginned cotton and cottonseed are exempt. Id., 523–524. But there is hardly less difference between cotton in the field and cotton at the gin or in the bale or between cottonseed in the field and cottonseed at the gin, than between a chicken in the pen and one that is dressed. The ginned and baled cotton and the cottonseed, as well as the dressed chicken, have gone through a processing stage. But neither has been 'manufactured' in the normal sense of the word.[373]

The Agricultural Exemption, presently codified at 49 U.S.C. § 13506,[374] applies to the Surface Transportation Board, successor, in material part, to

368. *Id.* at 223–24.

369. 351 U.S. 49 (1956).

370. *Id.* at 49.

371. *Id.* (summarizing procedural history).

372. *Id.*

373. *Id.*

374. *See* 49 U.S.C. § 13506(a)(6)(A) (exempting transportation of "ordinary livestock" from regulation).

the ICC.[375]

### *B. Collective Bargaining and Labor Market Rigidities*

The agricultural exemption under the National Labor Relations Act and its limitation to statutory employees, excluding independent contractors, meant that cow-calf, feedlot operations, and the transportation services that connected them could be shaped entirely by market forces and not constrained by collectively bargained labor agreements.[376] Beef packing, on the other hand, is subject to federal labor law and was highly organized through much of the twentieth century.

Trade unions exist to protect and enhance compensation and working conditions on a foundation represented by the status quo.[377] Therefore, union organization and collective bargaining are hostile to the adjustments required by Creative Destruction. Indeed, much effective organization by trade unions was occasioned by real or perceived hardships associated with adaptation to new technologies.

The beef industry has largely avoided these effects because of an agricultural exemption in the National Labor Relations Act and because the modern-day cowboy in the form of an owner-operator independent truck driver is not an "employee" protected by the Act.[378]

Collective bargaining has an uneven presence in the beef industry. Owner-operator independent truckers are not entitled to engage in collective bargaining under the National Labor Relations Act.[379] Cow-calf operation and feedlot cowboys are outside the coverage of the National Labor Relations Act because of the agricultural exemption.[380] On the other hand, the packers were highly organized at the beginning of the twentieth century,[381] and technologically driven concentration made it easier for

375. *See* Serv. First Logistics, Inc. v. J. Rodrigues Trucking, Inc., No. 16-14337, 2017 WL 1365410, at *2–4 (E.D. Mich. Apr. 14, 2017) (applying "Carmack Amendment" to carrier-liability claim, which depends on economic regulatory jurisdiction; relying on *East Texas Freight Lines* and other Interstate Commerce Act cases); *see also* 49 U.S.C. § 13506(a)(4)-(6) (containing the agricultural exemption).

376. 49 U.S.C. § 13506 (a)(1)–(6).

377. *See* United Mine Workers v. Pennington, 381 U.S. 657, 667 (1965).

378. 29 U.S.C. § 152(3).

379. *See* HAMILTON, *supra* note 4, at 159.

380. *See supra* Part V.A.

381. *See* John Brueggemann & Cliff Brown, *The Decline of Industrial Unionism in the Meatpacking Industry: Event-Structure Analyses of Labor Unrest*, *1946-1987*, 30 WORK & OCCUPATIONS 327, 327 (2003), https://journals.sagepub.com/doi/pdf/10.1177/0730888403253912 (arguing that meatpackers remained highly organized through the mid-twentieth century, but the development of new technologies, geographic reorganization of production, and new pools of cheap non-union labor eviscerated United

unions to organize and maintain the firm once representation rights were won.[382] Collective bargaining did not inhibit the geographic dispersion of beef processing plants, even though they are owned by a handful of large unionized enterprises.[383] Many of these local and regional facilities are not organized.

Collective bargaining, when it is effective at all, puts a floor under wage rates and, usually, through collectively bargained work rules, limits employer flexibility to accommodate new technologies by reassigning or shrinking the workforce.[384]

Collective bargaining was crystallizing as a labor market institution while long cattle drives were disappearing.[385] As the second and third waves of Creative Destruction were occurring, the law of collective bargaining, which emerged in fits and starts from the 1880s until the 1940s, was a pragmatic response to widespread social unrest manifested by outbreaks of strikes throughout the period.[386] The content of the regulatory regime that emerged, reflected the ongoing tension between profits and productivity on the one hand, and quality of work-life on the other. Much of the content was shaped by the insights of a robust generation of labor law and industrial relations academics.

In theory, the rights, privileges, and procedures that define labor law[387] create a regime of industrial democracy in which employee representatives and enterprise management can work together to chart the course of the enterprise, including its adaptation to changes in technologies and business models. Sometimes it has worked this way, as in the post-World War II collective-bargaining agreements that accommodated greatly increased coal mine productivity in exchange for sharing some of the profit gains through employee benefit trusts[388] and in some of the railroad crew size-reduction

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Packinghouse Workers of America).

382. *See UFCW Meat Packing & Food Processing*, UNITED FOOD & COM. WORKERS, http://www.ufcw.org/meat-packing/ (last visited Oct. 29, 2019) (reporting changes in industry structure that have made union organizing more difficult and reporting that seventy percent of beef consumed in the U.S. is processed by UFCW members).

383. *See id*.

384. *See* Charles B. Craver, *Labor Arbitration as A Continuation of the Collective Bargaining Process*, 66 CHI.-KENT L. REV. 571, 573 (1990).

385. *Id.*

386. *Id.*

387. *See* 29 U.S.C. § 157 (giving employees the right to engage in collective action with respect to wages, hours, and working conditions); *see also* 45 U.S.C. § 153 (conferring a similar right to airline and railroad employees).

388. *See* E. Enter. v. Apfel, 524 U.S. 498, 504–06 (1998) (recounting the history of bargaining for health care benefits for coal miners).

agreements of the early 1980s.[389]

For the most part, however, collective-bargaining has not worked to accommodate change, but rather to delay it as long as possible and to prevent firms from realizing the economic benefits of new technologies. Crew-size agreements and other work rules in the railroad industry are dramatic examples. Sixty years after diesel locomotive technology made locomotive firemen unnecessary, railroads were still obligated to employ and pay them.[390] Through the same period, rail labor worked effectively to legislate many collective bargain restrictions into statutory law at the state level.[391]

The trucking industry suffered similarly. The Teamsters union insisted on collectively bargained provisions to protect the market share of large unionized trucking operators which blocked as much as possible the entry of smaller operators that might offer a lower rate and be harder to organize.[392]

In *California Dump Truck Owners Ass'n. v. Associated General Contractors*,[393] the court of appeals described the limitation on owner-operators, while finding that it did not violate the antitrust laws outside the labor exemption:

> The MLA may have an effect upon the appellants, but it is an indirect effect. The MLA does not prohibit the use of owner-operators by the employers. Under the MLA, an employer may obtain trucks or equipment from any source. The only requirement is that the owner-operators must be cleared before starting to work on the second day. To be cleared, the owner-operators must present themselves and proof of legal or registered ownership at Local 36's office. The owner-operators are not subject to the provisions of Article II(B)(2) and (3) which require that employers first seek workmen from the appropriate union.[394]

The Teamsters Union represents workers in the food processing industry, such as forklift drivers, machine operators, and production line workers.[395]

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389. *See* UTU v. Conrail, 535 F. Supp. 697, 701–02 (Reg'l Rail Reorg. Ct. 1982) (explaining the history of crew-consist controversy and the Conrail crew consist agreement).

390. See Bhd. of Locomotive Firemen & Enginemen v. Atchison, Topeka & Santa Fe Ry. Co., 442 F.2d 794, 798 (D.C. Cir. 1971) (recounting the history of efforts to eliminate firemen from diesel locomotives).

391. Bhd. of Locomotive Firemen & Enginemen v. Chicago, Rock Island & Pac. R.R. Co., 393 U.S. 129, 143–44 (1968) (upholding the constitutionality of full crew laws).

392. See Richards v. Neilsen Freight Lines, 810 F.2d 898, 901 (9th Cir. 1987) ("[W]e can assume that the terminations were either in response to back solicitations by Foothills, or in response to pressure by the Union on each major carrier not to interline with Foothills until Foothills recognized the Union.") (finding conduct to be within the labor exemption to the antitrust laws).

393. 562 F.2d 607 (9th Cir. 1977).

394. *Id.* at 613.

395. Int'l Bhd. of the Teamsters Union, *Food Processing Division*, TEAMSTERS BLOG,

The Union does not advertise that it represents any truck drivers in the cattle hauling industry or adjacent processing industries.[396]

The exclusion of independent contractors from the collective-bargaining system[397] provided more breathing room for the owner-operator part of the trucking industry to develop and establish a foothold in the beef industry. The statutory definition of "employees" enjoying collective-bargaining rights worked in conjunction with the agricultural exemption from economic regulation for this part of the trucking industry.[398]

In *Holly Farms Corp. v. NLRB*,[399] however, the Supreme Court agreed with the court of appeals that the NLRB permissibly determined that "live haul" crews were statutory employees, outside the agricultural exemption.[400] The employees in question were chicken catchers, forklift operators, and truck drivers who collected birds raised by independent contract growers and transported them to Holly Farms processing plant for slaughter.[401] The court noted that the National Labor Relations Act's agricultural exemption is interpreted according to the agricultural exemption in the Fair Labor Standards Act.[402]

Section 3(f) of the FLSA provides:

> "Agriculture" includes farming in all its branches and among other things includes the cultivation and tillage of the soil, dairying, the production, cultivation, growing, and harvesting of any agricultural or horticultural commodities (including commodities defined as agricultural commodities in section 1141j(g) of title 12), the raising of livestock, bees, fur-bearing animals, or poultry, and any practices (including any forestry or lumbering operations) performed by a farmer or on a farm as an incident to or in conjunction with such farming operations, including preparation for market, delivery to storage or to market or to carriers for transportation to

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https://teamster.org/divisions/food-processing (last visited Sept. 30, 2019) (see also sidebar on other divisions).

396. *Id.*

397. *See* Pan Alaska Trucking v. Int'l Bhd. of Teamsters, 621 F. Supp. 800, 803 (D. Alaska 1985) (holding that association of independent truckers, supported by Teamsters Union, did not qualify for labor exemption of antitrust laws; denying motions to dismiss antitrust suit). *Compare* N. American Van Lines, Inc. v. NLRB, 869 F.2d 596, 604 (D.C. Cir. 1989) (declining to enforce NLRB order because moving-van drivers were independent contractors and outside the coverage of NLRA;), *with* Corp. Express Delivery Sys. v. NLRB, 292 F.3d 777, 780 (D.C. Cir. 2002) (enforcing NLRB order and finding that express delivery owner-operator truck drivers were NLRA employees under entrepreneurship test).

398. *See* 29 U.S.C. § 203(e) (2018).

399. 517 U.S. 392 (1996).

400. *Id*. at 408–09.

401. *Id*. at 394.

402. *Id*. at 397–98 (quoting and applying § 3(f) of FLSA, 29 U.S.C. § 203(f)).

market.[403]

Notably, the subsection expressly includes "raising of livestock," which likely includes cow-calf operations, "preparation for market," which logically includes feedlots and packing houses, "delivery to market," and "carriers for transportation to market, which likely includes transport between segments of the market.[404] The Supreme Court, however, distinguished between "primary" agricultural activities, such as raising of beef, and "secondary" activities, such as delivery, storage, and transportation of beef.[405]

The Court easily concluded that primary farming includes raising poultry.[406] "All agree that the independent growers, who raise Holly Farms' broiler chickens on their own farms, are engaged in primary agriculture."[407] The activities in question, however, were not "performed by a farmer."[408] Nor were the operations necessarily "incidental" to farming, given that the live-haul work began after the farmers' contractual obligation ended, and that the farmers did not participate in the live-haul operation, and that live-haul crew activities were integrated with Holly Farm's processing operations rather than with farming operations.[409]

This interpretation, while not compelled by the statute, was sufficiently reasonable to be within the Board's statutory discretion.[410] It also accords with the Department of Labor's interpretive guidance, quoted below, the Court said.[411]

Labor Department guidance interpreting the FLSA exemption says: "[n]o matter how closely related it may be to farming operations, a practice performed neither by a farmer nor on a farm is not within the scope of the 'secondary' meaning of 'agriculture.'"[412]

Sections 780.120 and 780.121 of the regulation address the "raising of livestock."[413] Section 780.120 makes it clear that cattle are "livestock."[414] Section 780.121 says:

403. 29 U.S.C. § 203(f) (2018).
404. *Id*.
405. *Holly Farms Corp*., 517 U.S. at 398.
406. *Id*. at 399.
407. *Id*. at 399–400.
408. *Id*. at 400.
409. *Id.* at 402–04.
410. *Id*. at 408–09.
411. *Id*. at 408.
412. 29 C.F.R. § 780.129. (2018).
413. *Id.* §§ 780.120–780.121.
414. *Id.* § 780.120.

> The term "raising" employed with reference to livestock in section 3(f) includes such operations as the breeding, fattening, feeding, and general care of livestock. Thus, employees exclusively engaged in feeding and fattening livestock in stock pens where the livestock remains for a substantial period of time are engaged in the "raising" of livestock. The fact that the livestock is purchased to be fattened and is not bred on the premises does not characterize the fattening as something other than the "raising" of livestock. The feeding and care of livestock does not necessarily or under all circumstances constitute the "raising" of such livestock, however. It is clear, for example, that animals are not being "raised" in the pens of stockyards or the corrals of meat packing plants where they are confined for a period of a few days while en route to slaughter or pending their sale or shipment. Therefore, employees employed in these places in feeding and caring for the constantly changing group of animals cannot reasonably be regarded as "raising" livestock (NLRB v. Tovrea Packing Co., 111 F. 2d 626, cert. denied 311 U.S. 668; Walling v. Friend, 156 F. 2d 429). Employees of a cattle raisers' association engaged in the publication of a magazine about cattle, the detection of cattle thefts, the location of stolen cattle, and apprehension of cattle thieves are not employed in raising livestock and are not engaged in agriculture.[415]

Thus, employees of cow-calf operators and feedlots are unequivocally within the exemption.[416]

### *C. Antitrust Law*

Contrasted with its approach to transportation law and labor law, the federal government moved aggressively to use competition law to reshape the industry.[417] The effort had little effect, however.[418]

Antitrust law had relatively little to do with the evolution of the industry.[419] Cow-calf operations separated from large scale ranching and

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415. *Id.* § 780.121.

416. *Id.*

417. Perritt, *supra* note 3, at 401; *see* William Estuardo Rosales, Comment, *Dethroning Economic Kings: The Packers and Stockyards Act of 1921 and its Modern Awakening*, 2004 WIS. L. REV. 1497, 1507–08 (2004) (describing the federal government's late-nineteenth and early twentieth-century efforts to curb price-fixing and other illegal anti-competitive practices in the cattle industry).

418. Perritt, *supra* note 3, at 401; *see* James May, *Antitrust in the Formative Era: Political and Economic Theory in Constitutional and Antitrust Analysis, 1880-1918*, 50 OHIO ST. L. J. 257, 293 (1989) (noting that nineteenth-century regulators were unable to foresee that anticompetitive conduct would not have nearly as much impact on "persistent market power" in the cattle industry as new technology and economies of scale).

419. *See* Perritt, *supra* note 3, at 426–27 (discussing the changes in the industry that occurred due to land, labor, capital, technology, and entrepreneurship). *But see* Bullard,

replaced part of its function while remaining decentralized.[420] This occurred because of land scarcity, land-use policies, technology, and other market forces, not because of law.[421] Feedlots replaced the other function of large scale ranching.[422] Feedlots also have a less centralized structure than the big nineteenth-century ranches, driven by technology and market forces; not by law.[423]

Antitrust law targeted the beef packing segment, and there it had little effect; beef packer concentration was high, and greater at the end of the twentieth century.[424] The early twentieth-century antitrust attack on the beef packers was motivated by cattlemen's rage against developments in the market for beef. Beef prices had declined in the middle of the Populist Movement.[425] This came on the heels of an excess of the British capital, overgrazing, speculation, and the end of open range ranching by the winter of 1886–1887.[426]

The combination of decreased supply — twenty-five percent of the Northern Plains herds were killed by the winter, some probably exaggerated, estimates said — and depressed prices meant sharply reduced revenues for

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*supra* note 226, at 562–63 (detailing how the USDA implemented regulations for the cattle industry in 1974).

420. Perritt, *supra* note 3, at 399; *see* Marc Stimpert, *Clear the Air: Counterpoint: Opportunities Lost and Opportunities Gained: Separating Truth from Myth in the Western Ranching Debate*, 36 ENVTL. L. 481, 496 (2006) (explaining that the change to the farming system was a difficult shift from farming practices of the past that allowed closed ranching).

421. Perritt, *supra* note 3, at 426–27. *But see* George Cameron Coggins, *The Law of Public Rangeland Management V: Prescriptions for Reform*, 14 ENVTL. L. 497, 497 (1984) (explaining that Congress attempted legal remedies when it gave the Bureau and Land Management over 170 million acres of land to control).

422. Perritt, *supra* note 3, at 398; Hubbs, *supra* note 80, at 2.

423. Perritt, *supra* note 3, at 398–99; Drouillard, *supra* note 213, at 1007–08.

424. *See* Perritt, *supra* note 3, at 400 (arguing that the cause of rising beef prices was likely "overgrazing, overinvestment, and the obsolescence of open-range ranching brought about by steel plows, windmills, and barbed wire" and not beef packers' conspiracies); Sutton, *supra* note 202.

425. Samuel Western, *The Wyoming Cattle Boom, 1868-1886*, WYOHISTORY.ORG (Nov. 8, 2014), https://www.wyohistory.org/encyclopedia/wyoming-cattle-boom-1868-1886.

426. Wholesale prices for cattle surged to $6.47 per hundredweight in May 1870, remaining between $4.00 and $5.00 per hundredweight for most of the 1870s. They dipped to $4.00 in 1880 but climbed back to $7.00 by 1882. This stimulated a new surge in British investment. Overgrazing and the drought threaten production, the oversupply continued to depress prices, to $3.16 per hundredweight in November 1886. Then came the winter of 1886-1887, causing a loss of at least fifteen percent of the herds—most estimates are much higher, but probably inflated. Cattle prices did not climb back to $7.00 per hundredweight until 1910. *See* Western, *supra* note 425.

the loudest voices in the industry.[427] They looked for someone to blame other than the invisible hand of the marketplace. The Populist Movement made any large corporation an attractive target, and the five largest meatpackers qualified.[428] The Roosevelt Administration eventually yielded to this pressure and brought an antitrust action against the packers.[429]

The same technologies and market expansions that created surplus corn, leading to feedlots for cattle, also threatened to reduce farmer incomes, as prices fell in the face of greatly increased supply.[430] Similarly, the technologies that were reshaping the beef industry made it increasingly difficult for traditional participants in that market to maintain the status quo. Change is always painful, and the capacity to make a change is unevenly distributed, that is the "destruction" part of Creative Destruction.[431] Farmers and ranchers reacted by seeking someone to blame for the threats to their livelihoods. Railroads and beef packers proved to be attractive targets.[432] Beef packers were remote and depersonalized from corporate form, which made it easy to demonize them. Political entrepreneurs of the Populist and Progressive Movements fanned the flames.[433]

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427. *Id*. (showing prices were sluggish because more land was being brought into beef production on small enclosed plots).

428. *See* Perritt, *supra* note 3, at 400 (noting the lawsuit filed against the big five meatpackers); James L. Hunt, *Populism, Law, and the Corporation: The 1987 Kansas Supreme Court*, 66 J. AGRIC. HIST. 28, 28–30 (1992), https://search.proquest.com/openview/ecdfff30e40ae773de89421537490e68/1?pq-origsite=gscholar&cbl=1816684 (stating Populism was anticorporate and government ownership of "natural monopolies"); Alan Furman Westin, *The Supreme Court, The Populist Movement and the Campaign of 1896*, J. POL. 3 (Feb. 1953), https://www.jstor.org/stable/2126191 (mentioning the effect of Supreme Court opinions from 1876 to 1896 on the Populist movement).

429. Perritt, *supra* note 3, at 400. *See generally* Gordon David, *Swift and Co. v. United States: The Beef Trust and the Stream of Commerce Doctrine*, 28 A. J. LEGAL HIST. 244, (1984) (detailing the political and legal history surrounding *Swift & Co. v. United States*).

430. Perritt, *supra* note 3, at 393; Kelton, *supra* note 47 (showing that changes in the technology of cattle ranching led to turmoil in the industry).

431. Arthur M. Jr., Diamond, *The Creative Destruction of Labor Policy*, 2 LIBERTARIAN PAPERS 107, 107 (2014), http://libertarianpapers.org/wp-content/uploads/2014/08/article/2014/08/lp-6-2-22.pdf.

432. *See* Perritt, *supra* note 3, at 399–400 (discussing the controversy over the "Beef Trust" where beef packers were blamed for the rise in the cost of beef); JOSHUA SPECHT, RED MEAT REPUBLIC 247–48 (2019).

433. Perritt, *supra* note 3, at 399–400 (explaining "political entrepreneur" as the term is used in the text, which includes office seekers and officeholders, and other political activists such as party leaders, newspaper editors and reporters and other kinds of "reformers"); Robert B. Shepherd, Jr., *What Roosevelt Thought: A Rough Rider's Guide to the USTEA*, 23 QUINNIPIAC PROB. L.J. 311, 314 (2010) (explaining that progressive politicians were concerned over corporate abuses and sought to highly regulate business

The result was the Sherman Antitrust Act and a general trust-busting movement.[434] The economics of the movement sought to inhibit technology's effects retarding more effective production and distribution by larger regional and national entities.[435]

The movement was quite powerful, animating a large part of the domestic program of the Roosevelt Administration, including prosecution and civil lawsuits against the "beef trust" brought under the Sherman Act.[436]

In *Swift & Co. v. United States*,[437] the Supreme Court affirmed, in material part, the injunction against the "beef trust" granted by the circuit court.[438] Although the Court accepted the government and the ranchers' theory that meatpacker conspiracies had depressed beef prices, far more likely causes were overgrazing,[439] overinvestment, and obsolescence of open range ranching brought about by steel plows, windmills, and barbed wire.[440]

The court characterized the Government's claims:

> [I]t charges a combination of a dominant proportion of the dealers in fresh meat throughout the United States not to bid against each other in the live-stock markets of the different states, to bid up prices for a few days in order to induce the cattle men to send their stock to the stock yards, to fix prices at which they will sell, and to that end to restrict shipments of meat when necessary, to establish a uniform rule of credit to dealers, and to keep a black list, to make uniform and improper charges for cartage, and finally to get less than lawful rates from the railroads, to the exclusion of competitors . . . . [A]fter all the specific charges, there is a general

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trust forms).

434. *See* 15 U.S.C. §§ 1–7 (2018) (protecting trade and commerce against unlawful restraints and monopolies).

435. *See* Perritt, *supra* note 3, at 427; *Progressives and the Era of Trustbusting*, CONST. RIGHTS FOUND. (2007), https://www.crf-usa.org/bill-of-rights-in-action/bria-23-1-b-progressives-and-the-era-of-trustbusting.html (noting the effect of outlawing the combination or conspiracy to "monopolize any part of the trade or commerce").

436. Perritt, *supra* note 3, at 400; Swift & Co. v. United States, 196 U.S. 375, 395 (1905) (applying the Sherman Antitrust Act to allow the government to regulate the meat industry and prevent leading meatpackers from fixing beef prices from stockyards with the intent to control meat across states).

437. 196 U.S. 400 (1905).

438. *Id.* at 402 (affirming Swift & Co. v. United States, 122 F. 529, 529–530 (C.C. N. D. Ill. 1903).

439. *See* Morrow-Thomas Hardware Co. v. Comm'r, 22 T.C. 781, 788–89 (Tax. Ct. 1954) (discussing the agricultural history of the plains, including the dust bowl, along with the proposition that proper farming practices could prevent a "dust condition"); Merrill, *supra* note 345, at 435 (describing the tension between homesteaders and ranchers as ranchers sought federal protection of grazing rights).

440. *See* Perritt, *supra* note 3, at 400; STEVEN F. MEHLS, THE NEW EMPIRE OF THE ROCKIES: A HISTORY OF NORTHEAST COLORADO 57–58 (Frederic J. Athearn ed., 1984) (describing how market prices for cattle declined partially due to overgrazing).

> allegation that the defendants are conspiring with one another, the railroads and others, to monopolize the supply and distribution of fresh meat throughout the United States, etc., as has been stated above, and it seems to us that this general allegation of intent colors and applies to all the specific charges of the bill.[441]

The eventual remedy was to force the divestiture of significant parts of the five dominant national beef processors and to reverse the vertical integration that markets and technology had produced through the entrepreneurship of Swift and his contemporaries.[442]

The Federal Trade Commission concluded in 1918[443] that a market sharing agreement among the big five packers market-sharing took:

> [T]he form of a livestock pool, providing substantially for the division of purchases of the cattle, sheep, and hogs sent to market according to certain fixed percentages . . . . With each packer purchasing only a certain percentage of livestock . . . each is bound to have relatively the same proportion of meat for sale . . . . In brief, the prearranged division of livestock purchases forms the essential basis of a system, by which the big packers are relieved of all fear of each other's competition and, acting together, are able to determine broadly not only what the live- stock producers receive for their cattle and hogs, but what the consumer shall pay for his meat.[444]

The consent decree in 1920[445] provided for the divestiture of packer interests in stockyards, terminal railroads, cold storage warehouses, and retail meat markets.[446]

The result was the opening up of market-entry opportunities for retailers and distributors of processed beef and the power of processor-owned feedlots. For the most part, however, the antitrust suit left intact the market structure for live cattle.[447] Beef ranchers continued to do business mainly under the influence of supply and demand in the global market for grain and meat and continued to be threatened with obsolescence if they did not

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441. *Swift & Co.*, 196 U.S. at 394–95.

442. *See* AZZEDDINE M. AZZAM & DALE G. ANDERSON, ASSESSING COMPETITION IN MEATPACKING: ECONOMIC HISTORY, THEORY, AND EVIDENCE 1, 21 (1996) [hereinafter COMPETITION IN MEATPACKING].

443. FED. TRADE COMM'N, REPORT OF THE FEDERAL TRADE COMMISSION ON THE MEAT-PACKING INDUSTRY: SUMMARY AND PART I 28 (1919).

444. William H. Nicholls, *Market-Sharing in the Packing Industry*, 22 J. FARM ECON. 225, 225 (1940) (quoting FED. TRADE COMM'N, *supra* note 443.).

445. *See* Swift & Co., 276 U.S. at 319–21 (describing the 1920 consent decree and litigation that produced it and rejecting the claim that consent decree was void).

446. COMPETITION IN MEATPACKING, *supra* note 442, at 1, 22.

447. *Id.* at 1 (proposing that neither the consent decree nor the Packers and Stockyard Act had a direct effect on the meatpacking industry).

embrace new technologies.[448]

Fifty years later, in *United States v. Armour & Co.*,[449] the Supreme Court held that the Consent Decree did not prohibit Greyhound Corporation from acquiring Armour, one of the defendants to the consent decree.[450] The Court explained the Government's argument:

> The crucial provision, Paragraph Fourth, forbids the corporate defendants from "engaging in or carrying on" commerce in the enumerated product lines. This language, taken in its natural sense, bars only active conduct on the part of the defendants. Thus Armour could not trade in these products, either under its own corporate form, or through its 'officers, directors, agents, or servants.' The entry of Armour into the grocery business through subsidiaries is clearly and draconically prevented by the separate provision of Paragraph Fourth forbidding the defendant meatpackers from owning "any * * * interests whatsoever" in a firm trading in the enumerated commodities. In the Government's view these prohibitions also bar Armour from having any ownership relationship with corporations like Greyhound. The Government contends that Armour has an obligation not to engage directly or indirectly in legal or economic association with firms in the retail food business. It refers to the prohibited relationship between Armour and Greyhound.[451]

The Court disagreed, holding that the Consent Decree does not bar relationships, only conduct.[452]

In its opinion, the Court summarized the litigation history of the Consent Decree:

> Since 1920, the decree has withstood a motion to vacate it in its entirety, Swift & Co. v. United States, 276 U.S. 311 (1928), and two attempts on the part of the defendants to have it modified in light of alleged changed circumstances. United States v. Swift & Co., 286 U.S. 106 (1932); United States v. Swift & Co., 189 F. Supp. 885, 892 (ND Ill. 1960), aff'd, 367 U.S. 909 (1961). Thus the decree stood at the time this case arose, and still stands, as originally written.[453]

Cattlemen have not given up their efforts to blame the beef packers for market reverses. In *In re Beef Industry Antitrust Litigation*,[454] the district court rejected the plaintiff's argument under the Sherman Act that alleged

448. *Id.* at 22 (stating that technological developments such as "transportation and refrigeration" may have had an impact on the meatpacking industry).

449. 402 U.S. 673 (1971).

450. *Id.* at 687–88.

451. *Id.* at 678.

452. *Id.*

453. *Id.* at 678.

454. 542 F. Supp. 1122 (N.D. Tex. 1982).

that grocery retailers conspired to hold down the prices they paid to packers, which restrictions were directly passed on to feedlot operators.[455]

Despite the commotion and political rhetoric occasioned by the lawsuit and the 1920 Consent Decree — and more recent lawsuits — antitrust law did little to slow the concentration of beef packing, which continued to increase throughout the twentieth century,[456] in terms of ownership, though not in size and location of processing facilities. The structure of that segment of the industry was a result of technology and business models, and the law could not do much about it.[457]

Despite this, cattlemen continue to assert conspiracies by the meatpackers in violation of the antitrust laws. The 1903 litigation and the 1920 Consent Decree, however, may have discouraged the packers from vertically integrating.[458] Economies of scale in the retail food industry and the broadening of product lines for the major beef packer brands logically could have led to forward integration into the retail sector, but such a corporate strategy would have sailed directly into the wind represented by the Consent Decree, and courts refused to lift or modify it in 1928, 1932, and 1960.[459]

Similarly, the economics of feedlot operations suggest the desirability of backward integration by packers into that sector. But the data shows that packers have used other techniques, such as participation in futures markets, and signing forward contracts with feedlots and cow-calf operators, to realize some of the benefits of vertical integration.[460] The economics of cow-calf operations, constrained as they are by land scarcity and environmental concerns, make it less likely that beef packers could find a way of integrating into that sector.[461]

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455. *Id.* at 1141–42 ("The true facts are that the packers' calculations of anticipated profit have no such formulaic operation nor have feeders shown the inelasticity of the supply.").

456. *See* CONCENTRATION IN THE RED MEAT PACKING INDUSTRY, *supra* note 5, at 71–72 (summarizing the history of the beef industry since 1600).

457. *See generally* Robert M. Aduddell & Louis P. Cain, *The Consent Decree in the Meatpacking Industry, 1920-1956*, 55 BUS. HIST. REV. 359 (1981) (concluding that consent decree tended to deprive society of rational structural change but was largely ineffective).

458. Aduddell & Cain, *supra* note 457, at 371.

459. *See* Sutton, *supra* note 202, at 612; *see also* Armour & Co., 402 U.S. 673, 673 (1971).

460. *See* Sutton, *supra* note 202, at 612 (discussing the history of meatpacking from the early 1920s, elaborating that vertical integration has led to more companies signing forward contracts); *see also* MORGAN HAYENGA ET. AL., MEAT PACKER VERTICAL INTEGRATION AND CONTRACT LINKAGES IN THE BEEF AND PORK INDUSTRIES: AN ECONOMIC PERSPECTIVE 19–20 (2000) (listing reasons for vertical integration in the beef industry).

461. *See* PEARSON HIGHER EDUC., AN OVERVIEW OF THE U.S. BEEF INDUSTRY 7, 8

Moreover, the continued readiness of cattlemen to blame their disappointments on violations of competition law by beef packers probably exerts an *in terrorem* effect on beef packer integration strategies.

### *D. Agricultural Subsidies and Mandates*

General agricultural policies had opposing effects on the beef industry. Price supports for corn artificially increased the supply and lower the price for the most important type of cattle feed, tending to increase cattle production.[462] On the other hand, mandates for ethanol as a fuel tended to crowd out cattle feed as a use for corn, thus increasing the price and reducing the number of cattle produced.[463]

The agricultural sector has experienced less government regulation than other sectors, but it has enjoyed other forms of government intervention. Beef production is not subsidized directly, but a variety of corn subsidies and stabilization measures influence beef production indirectly.[464] Particularly important are ethanol mandates for fuel. While the government has been abstentionist with respect to regulation of product markets in the beef industry, and with respect to regulation of labor markets through collective bargaining, it has been activist with respect to the subsidization of factor markets.[465] Corn is the most important agricultural crop in the United States, and close to half of it is animal feed.[466] Feed accounts for sixty-five percent

(2016) (explaining that forage supply may be affected by environmental changes, which has a direct effect on the price of production for the cattle industry).

462. *See* Thomas Capehart, *Feedgrains Sector at a Glance*, U. S. DEP'T OF AGRIC. ECON. RESEARCH SERV. (Aug. 20, 2019), https://www.ers.usda.gov/topics/crops/corn-and-other-feedgrains/feedgrains-sector-at-a-glance/ (explaining how the Federal Agriculture Improvement and Reform Act allows farmers to make their own cropping decisions, leading to an increase in the amount of corn being produced in order to increase the number of cattle they can maintain).

463. *See* Joshua A. Byrge & Kevin L. Kliesen, *Ethanol: Economic Gain or Drain?*, FED. RESERVE BANK OF ST. LOUIS (July 1, 2008), https://www.stlouisfed.org/publications/regional-economist/july-2008/ethanol-economic-gain-or-drain (explaining the federal government requires a 500% increase in ethanol production by 2022, which will inevitably increase the proportion of the nation's corn crop).

464. *See* Daniel A. Sumner, *Agricultural Subsidy Programs*, ECONLIB, https://www.econlib.org/library/Enc/AgriculturalSubsidyPrograms.html (last visited Oct. 30, 2019) (explaining how much of the government support for agriculture comes in the form of indirect consequences from the subsidies it provides).

465. *See* Ethics Insiders, *Should Governments Subsidise the Meat and Dairy Industries?*, MEDIUM (Dec. 19, 2016), https://medium.com/@laletur/should-governments-subsidy-the-meat-and-dairy-industries-6ce59e68d26 (explaining that governments have subsidized certain food products in order to affect consumer habits by driving down prices).

466. *See* Capehart, *supra* note 462.

of the total cost of raising beef for slaughter.[467] Accordingly, cattle production is quite sensitive to corn markets.

USDA price supports in the form of subsidies for the difference between an administratively determined reference price and the market price for corn results in an artificially large corn supply because it boosts the revenue farmers receive from growing corn above the revenue that market prices would produce.[468] This suppresses corn prices and reduces the cost of beef production.[469] The effect is the same as if the government directly subsidized beef production.[470]

Two forces have offset this phenomenon. First, government promotion of ethanol as part of a pathway toward energy independence[471] has diverted thirty percent of the corn crop, resulting in a reduced percentage available for animal feed, and tending to increase the price.[472] Ethanol production,

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467. *See* Greg Lardy, *A Cow-calf Producer's Guide to Custom Feeding*, N.D. STATE UNIVERSITY (May 2018), https://www.ag.ndsu.edu/publications/livestock/a-cow-calf-producers-guide-to-custom-feeding (referring to the Worksheet for Projecting Cost of Gain and Breakeven Price, which demonstrates that $498.54 total feedlot cost, divided by $326.25 total feed cost equates to sixty-five percent).

468. *See* USDA Communications, *$14.5 Billion to Be Paid to US Farmers in Latest Market Facilitation Program*, HOOSIER AG TODAY (May 23, 2019), https://www.hoosieragtoday.com/14-5-billion-paid-us-farmers-latest-market-facilitation-program/ (describing types of payments); USDA Press Release, *USDA Announces Details of Support Package for Farmers*, U. S. DEP'T OF AGRIC. (July 25, 2019), https://www.usda.gov/media/press-releases/2019/07/25/usda-announces-details-support-package-farmers (announcing a temporary program of price supports due to Chinese trade disruptions).

469. *See* Wes Ishmael, *Corn Prices Shift Opportunity*, BEEF (June 28, 2019), https://www.beefmagazine.com/marketing/corn-prices-shift-opportunity.

470. *See* Stephanie Henry, *Corn Prices Continue to Look for Support*, DROVERS (Oct. 23, 2018), https://www.drovers.com/article/corn-prices-continue-look-support (discussing relationship among corn prices, corn supply, USDA policies, and cattle markets).

471. *See* U.S. Department of Energy, *Key Federal Legislation*, ALT. FUELS DATA CTR., https://afdc.energy.gov/laws/key_legislation (stating that the federal government provides a variety of tax credits and other incentives for ethanol); The Energy Independence and Security Act, 42 U.S.C § 7545 (2)(B)(i)(I) (2009) (providing that transportation fuel must include a minimum of 36 billion gallons of renewable fuels by 2022;ethanol is the dominant biofuel at present, but the 2007 legislation intends to shift the total supply to other biofuels, such as cellulosic biofuels).

472. *See* Drouillard, *supra* note 213 (reporting that growth in ethanol industry shifted feedlot feed to distiller's grain, now comprising ten percent to as high as seventy percent of feedlot feed); Andrew Gottschalk, *The Impacts of the U.S. Corn/Ethanol Policy on the U.S. Cattle Industry*, INST. OF AGRIC. & NAT. RES. (Dec. 11–13, 2007), https://beef.unl.edu/beefreports/symp-2007-01-xx.shtml (observing that the major impact of ethanol policy is to sharply increase corn prices, negatively affecting cattle industry, especially cow-calf sector); Nicholas Loris, *Ethanol and Biofuel Policies, Downsizing the Federal Government*, DOWNSIZING GOV'T (Feb. 9, 2017), https://www.downsizinggovernment.org/ethanol-and-biofuel-policies (arguing that

however, produces another source of cattle feed — distiller's grain, a byproduct of the ethanol refining process.[473] The net effect of ethanol policy has been to advantage Midwestern cattle producers.[474]

Second, changing dietary habits and, to a lesser extent, the campaign against global warming, have decreased beef consumption.[475] The combination of reduced demand and higher feed prices have resulted in an equilibrium of price and supply different from what the market would have produced.[476] Quantifying the difference is challenging because the ethanol subsidies did not simply divert a large percentage of a fixed level of corn production, it also called forth additional land into corn production.

The ethanol subsidies and mandate introduced a new degree of freedom for farmers. In addition to electing between corn and another crop, they can elect to sell their corn to an ethanol refinery or a feedlot.[477]

## VI. THE FUTURE

The thesis of this article is that the world of the twentieth-century cowboy has been shaped by technology and changes in business practices, and relatively little by law. The future of the cowboy and his industry in the twenty-first century will be shaped much more by law, although technology, of course, will continue to play an important role. The laws that shaped the cattle industry in the nineteenth century and the laws from which the cattle industry was largely exempt in the twentieth century were laws of general application, relating to property rights, economic regulation of

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"top-down" subsidies and mandates has "harmed consumers, damaged the economy, and produced negative environmental effects").

473. *See* Gottschalk, *supra* note 472 (noting that Distillers' Dried Grain ("DDG") is mostly available in the Midwest because spoilage and transportation costs generally limit its use to within 60 miles of ethanol refinery).

474. *See id*. (noting that ethanol policy results in as much as a $50 per head advantage to midwestern cattle producers).

475. *See* Yan Zheng et al., *Association of Changes in Red Meat Consumption with Total and Cause Specific Mortality Among US Women and Men: Two Prospective Cohort Studies*, BMJ (June 12, 2019), https://www.bmj.com/content/365/bmj.l2110 (finding that the consumption of red meat has a direct relationship with an increase in mortality rates); Abigail Abrams, *How Eating Less Meat Could Help Protect the Planet From Climate Change*, TIME (Aug. 8, 2019), https://time.com/5648082/un-climate-report-less-meat/ (finding that the production of red meat has an adverse relationship with climate change due to the grazing patterns of the animals used).

476. *See* Dillion Feuz, *Understanding Beef Demand*, BEEF (Feb. 24, 2009), https://www.beefmagazine.com/sectors/retail/0225-understanding-beef-demand (explaining the relationship between consumer demand and the price of beef).

477. *See* Larry Stalcup, *Competing with the Big Boys*, BEEF (Nov. 1, 2007), https://www.beefmagazine.com/sectors/feedlot/competing_big_boys (noting that there is a great financial incentive for farmers to sell their crop to an ethanol plant).

transportation, and collective bargaining.[478] The laws likely to channel the effects of new technologies in the cattle industry in the twenty-first century are different. They target the beef industry and seek to change its practices directly.

Here is one projection for the future of the industry:

> With ample supplies of lower-cost ethanol by-products, smaller feedlots in the Midwestern United States will be an important part of the industry, but overall, increasing corporate ownership (private and publicly traded companies) seems probable in both the United States and Canada. With generally favorable weather conditions, less-restrictive nutrient management and environmental concerns, and relatively limited urban encroachment, the Great Plains of the United States and the western provinces of Canada should continue to be the major of cattle feeding areas in North America.[479]

The author continues:

> In contrast to feedlots, consolidation in the North American cow-calf industry is limited by the capital required for land, particularly in the semi-arid western cow-calf production areas. As a result, cow-calf production is likely to remain structurally diverse for the foreseeable future. With a decreasing cow herd for the next few years and significant feeding capacity, however, it seems plausible that an increase in contractual arrangements between feedlots, particularly the large cattle feed companies, and the cow-calf and stocker operators who supply cattle will occur over the next few years. Such alliances should facilitate animal identification and traceability through the food chain, provide the opportunity for applying genetic selection tools in cow-calf herds that might benefit feedlot performance and marketing (e.g., markers for feed efficiency or carcass traits), and allow for implementation of pre- and early postweaning management strategies to improve animal health.[480]

Kirby and Bennington's futures will be determined by five large forces, themselves defining the fifth wave of Creative Destruction. Two of these are technological; three are sociological. The technological forces are two different aspects of robotics. Self-driving trucks will largely replace the trucks Bennington now drives, significantly decreasing job opportunities, while making it possible for Bennington and a few others like him to become

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478. *See* Cattle Research, *A Timeline of Changes: Beef Cattle Farming in North America*, ARROWQUIP (June 6, 2017), https://arrowquip.com/blog/cattle-research/timeline-of-changes-beef-cattle-north-america (explaining the changes in North America during this time period, which directly affected the cattle industry).

479. Michael L. Galyean, et al., *The Future of Beef Production in North America*, 1 ANIMAL FRONTIERS 29, 32 (2011).

480. *Id.*

monitors and controller sitting at remote computer consoles.[481]

Self-driving trucks may be slower to penetrate the cattle hauling market than other aspects of the trucking industry, however. Self-driving vehicle technology works better in controlled environments than in uncontrolled and unpredictable ones. In 2019, a Tesla Model Three can navigate an Interstate highway and most urban roads reliably and safely, staying in its lane, making lane changes only when prompted by the operator and has determined there is no other vehicle in the way, following a prescribed distance from the vehicle in front of it, starting and stopping with traffic flows.[482] It gets lost, however, when its automatic pilot is triggered on a secondary road without stripes marking the centerline and the sides of the road.

Discriminating between the side of the pavement and an unpaved shoulder is much harder than maintaining a prescribed distance from a white line, and discriminating between the surface of an unpaved road and the shoulder or the drainage ditch is even harder. The point is not that a robot cannot be designed to operate in the remote territory; it can. The point is that the design challenges are much greater, and therefore, the technology is much more expensive.

The market for self-driving trucks in any application is determined by a comparison of the costs of buying a robotic truck and the cost of hiring a truck driver to operate a conventional truck.[483] The cattle trucks linking cow-calf operations and feedlots and those linking most feedlots with processing plants must operate on unimproved roads to facilities that have little advanced technology. They are not limited to interstate highways and the pathways connecting buildings in high-tech manufacturing facilities. It is likely to remain much cheaper to hire Bennington to drive a conventional truck than to design and build one that will navigate all the routes autonomously. It will, thus, be some time before self-driving trucks have a material impact on cattle hauling operations, even after they have taken over much of long-haul over-the-road trucking. Bennington probably has a job for as long as he wants it.

Other aspects of robotics will replace much of what Kirby does.

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481. *See* Jeff Daniels, *Future of Farming: Driverless Tractors, AG Robots*, CNBC (Sep. 16, 2016), https://www.cnbc.com/2016/09/16/future-of-farming-driverless-tractors-ag-robots.html (explaining the ways in which the farming industry will change as a result of self-driving tractors).

482. *See Autopilot*, TESLA, https://www.tesla.com/autopilot (last visited Oct. 6, 2019).

483. *See* CSJ, *Driverless Trucks Will Reduce Labor Costs, Move Toward Cure for Driver Shortage*, OIL & GAS 365 (May 31, 2019), https://www.oilandgas360.com/driverless-trucks-will-eliminate-labor-costs-move-toward-cure-for-driver-shortage/ (claiming that self-driving trucks will help save costs because of their fuel efficiency and longer hours of operation without needing to factor in the costs for labor).

Inexpensive drones will observe herds, pinpoint their locations for roundups, and identify sick or injured cattle.[484] They will enable a smaller number of cowboys like Kirby to be dispatched to deal with problems exactly where they occur. Wheeled robots will drive cattle.[485] Operating in conjunction with automatically operated and synchronized gates, these robots will move cattle from one corral to another and load them off and on truck trailers. Stationary robots will handle most of the feeding operations in feedlots.

As with Bennington's, how much of Kirby's job will be replaced by robots depends on how much the robots cost. Kirby has lots of specialized skills, integrated in ways that are subtle and difficult to articulate and define. And Kirby comes pretty cheap. Designing and building a robot to do what Kirby does is very expensive, and it's not clear that the robot would be able to do his job as well or as quickly as he does it. So the mere possibility of advanced robot technology does not necessarily mean lost job opportunities for Kirby.

The three sociological forces are changing dietary habits, growing concern about environmental degradation, and growing sensitivity to animal rights.

Public concern with the adverse health effects of poor diets has been growing. Dietary improvement was not an unknown subject in the nineteenth century, but it has greatly intensified in the last decades of the twentieth and the first two decades of the twenty-first century.[486] Improved nutrition science has made it possible to understand the differential effects of eating different kinds of foods, sedentary lifestyles replacing hard manual work on the farm and in the factory have worsened physical fitness, and growing obesity have alarmed public health commentators.[487] It is not uncommon for them and the general press and media to refer to the situation as a "crisis."[488]

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484. *See* Drovers, *The Practicality of Drone Use in Ranching*, DROVERS (Sept. 13, 2016, 9:07 AM) https://www.drovers.com/article/practicality-drone-use-ranching (concluding that inexpensive drones can be useful for herding, monitoring fences, and finding lost stock); *see also* Heather Smith Thomas, *Are You Ready for a Drone?*, CANADIAN CATTLEMAN, (Nov. 28, 2017), https://www.canadiancattlemen.ca/2017/11/28/should-you-get-a-drone-for-your-cattle-operation/ (describing inexpensive drone use on cattle ranches).

485. *See Meet the Robot That's Making Cattle Herding Safer*, CARGILL (Oct. 18, 2018), https://www.cargill.com/story/meet-the-cowboy-robot-thats-making-cattle-herding-safer.

486. *See Americans Are Concerned About Poor Eating Habits*, BARNA (July 15, 2014), https://www.barna.com/research/americans-are-concerned-about-poor-eating-habits/ (highlighting the difference between age groups and concerns about diet).

487. *See* BongKyoo Choi et al., *Sedentary Work, Low Physical Job Demand, and Obesity in US Workers*, 53 AM. J. INDUS. MED. 1088, 1089 (2010) (discussing the possible cause for the obesity crisis being connected to low physical labor).

488. *See* David Blumenthal et al., *Rising Obesity in the United States is a Public Health Crisis*, THE COMMONWEALTH FUND (Apr. 24, 2018), https://www.commonwealth

Many of the proposals for improved nutrition emphasize eating less red meat and animal fats.[489] During the same time period, consumer tastes have shifted away from beef toward poultry, pork, and seafood.[490] It is likely that the campaign for healthier diets will continue, and that this rhetoric, combined with food sciences improvements in "meatless hamburgers" and other simulated beef products, will continue to exercise a restraining influence on consumer demand for beef.[491]

Environmental concerns long have shaped the beef industry. Indeed, the first wave of Creative Destruction was occasioned in part by the antagonism of residents of towns and cities to having slaughterhouses in their neighborhoods and cattle drives through their streets.[492] The modern-day environmental movement, generally viewed as having been triggered by Rachel Carson's book *The Silent Spring*,[493] has focused environmental protection efforts on agriculture, including the cattle industry.[494] Runoffs from feedlots as a source of water pollution have been a concern since the earliest days of the Environmental Protection Agency ("EPA"), and environmental activists insist that feedlot control should be strengthened[495]

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fund.org/blog/2018/rising-obesity-united-states-public-health-crisis.

489. *See ACS Guidelines for Nutrition and Physical Activity*, AM. CANCER SOCIETY (last modified Apr. 13, 2017), https://www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention/guidelines.html.

490. *See* Perritt, *supra* note 3, at 372–73 ("One cannot be sure that the shift in consumer tastes is attributable mainly to calls by experts for better nutrition; it may be a result of simple shifts in consumer tastes, much as the first part of the Industrial Revolution was occasioned by consumer shifts toward beef."); *see also*, Richard Waite, *2018 Will See High Meat Consumption in the U.S. but the American Diet is Shifting*, WORLD RESOURCES INST. (Jan. 24, 2018), https://www.wri.org/blog/2018/01/2018-will-see-high-meat-consumption-us-american-diet-shifting (depicting the decline in the consumption of beef in favor of poultry because of increased health concerns with consuming red meat).

491. *See* Brunilda Nazario, *Impossible? New Veggie Burgers Make a Run at Beef*, WEBMD (May 31, 2019), https://www.webmd.com/food-recipes/news/20190531/impossible-new-veggie-burgers-make-a-run-at-beef?print=true.

492. *See* Perritt, *supra* note 3, at 391 n.133; *see, e.g.*, Carl Abbott, *The Neighborhoods of New York*, *1760–1775*, 55 N.Y. HIST. 35, 48–49 (1974).

493. *See generally* RACHEL CARSON, SILENT SPRING (1962) (describing the adverse environmental impact of pesticides); *The Story of Silent Spring*, NAT'L RES. DEF. COUNCIL (Aug. 13, 2015), https://www.nrdc.org/stories/story-silent-spring (discussing influence of *Silent Spring*).

494. *See* NAT'L RES. DEF. COUNCIL, *supra* note 493 (discussing DDT and its effects on animals).

495. *See* Concerned Area Residents for the Env't v. Southview Farm, 34 F.3d 114, 118–19 (2d Cir. 1994) (reversing the district court and holding that feedlot was point source under Clean Water Act). *See generally Guide Manual on NPDES Regulations for Concentrated Animal Feeding Operations*, EPA (Dec. 1995), https://www3.epa.gov/npdes/pubs/owm0266.pdf (summarizing statutory and regulatory requirements

with accompanying limitations on where feedlots can be placed. Odors and noise from feedlots animate local zoning bodies to exclude them from areas close to dense populations.[496] As the population increases and as residential areas penetrate further into what had been rural territory, these pressures are likely to increase, ratcheting up the cost of land and the cost of environmental controls for feedlot operators.

Air pollution also is a concern, greatly intensified by the campaign against Global Warming. Approximately forty percent of greenhouse gases originate on farms and feedlots, potent sources of methane from cattle digestion.[497] These methane sources have been largely unregulated under the Clean Air Act because of the difficulty in addressing diffuse sources of air pollution as contrasted with point sources,[498] and because of the power of the agricultural lobby.[499]

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under Clean Water Act for cattle feedlots).

496. *See* Coyote Flats, L.L.C. v. Sanborn County Comm'n, 596 N.W.2d 347, 356–57 (S.D. 1999) (reversing the circuit court and upholding the denial of a permit to construct feedlot); *see also* Altenburg v. Bd. of Supervisors, 615 N.W.2d 874, 881 (Minn. Ct. App. 2000) (upholding ordinance restricting feedlots); Greg Henderson, *Missouri Feedlot Sued By Neighbors*, DROVERS (July 31, 2019), https://www.drovers.com/article/missouri-feedlot-sued-neighbors?mkt_tok=eyJpIjoiTnpaa1pEVTJaR000Wm1GbCIsInQiOiJxcTMyUjN4Uktjakd0S2tFK01TcGxma3E4Mkd6dDEwaVRERzc5M3pIb2VSVEFkbDdydVNrR2xaQ3FpOWduRjJvNkNxSkk4ekNDeVNmcG9YNHlwaEpCQlNoN3d2VUlQQ3J5SndvSjF0Smc0dlcrY2xBbm4rMFh2eXA1NGFablh0aSJ9 (reporting litigation by neighbors against feedlot that sought a permit to increase capacity from 900 head to 6,999).

497. *See* Georgina Austin, *Agriculture Eyed as Culprit in Global Methane Emissions Spike*, INSIDE CLIMATE NEWS (Dec. 16, 2016), https://insideclimatenews.org/news/14122016/agriculture-methane-emissions-climate-change ("Climate gains from a leveling off of carbon dioxide emissions are offset by a spike in methane, bringing new scrutiny to the livestock industry."); *see also* Juliette Majot, et al., *Big Meat and Big Dairy's Climate Emissions Put Exxon Mobile to Shame*, THE GUARDIAN (Nov. 7, 2017), https://www.theguardian.com/commentisfree/2017/nov/07/big-meat-big-dairy-carbon-emmissions-exxon-mobil (alleging that "three meat companies — JBS, Cargill, and Tyson — are estimated to have emitted more greenhouse gases last year than all of France and nearly as much as some of the biggest oil companies like Exxon, BP, and Shell").

498. *See* C. Gilmour et al., *Biogeochemistry of Trace Metals and Mettaloids*, SCI. DIRECT (2009) https://www.sciencedirect.com/topics/earth-and-planetary-sciences/diffuse-source (observing that diffuse sources of pollution are more difficult to control than point sources).

499. *See* Direck Steimel, *Keeping Up the Pressure on EPA*, IOWA FARM BUREAU (July 15, 2019), https://www.iowafarmbureau.com/Article/Keeping-up-the-pressure-on-EPA (referring to the campaign to get EPA to increase ethanol mandates); *see also* Nancy Fink Huehnergarth, *Big Agriculture Bullies and Lobbies to Keep Americans in the Dark*, FORBES (May 5, 2016 11:06 AM), https://www.forbes.com/sites/nancyhuehnergarth/2016/05/05/big-ag-bullies-and-lobbies-to-keep-americans-in-the-dark/#304ef676502c (criticizing the power of the farm lobby to limit public access to information about animal rights and competition). *See generally* Daniel W. Drezner, *The Power of the Farm*

Intensification of efforts to mitigate global warming are certain to draw more attention to and pressure for regulating methane emissions from cattle. Although some reduction can be obtained by changing cattle diets,[500] the campaign against methane is likely to be translated into louder calls for people to eat less beef, resulting in less cattle production. [501]

The animal rights movement grows out of the centuries-old concern about cruelty to animals.[502] In its recent form, it has resulted in the virtual eradication of the fur industry.[503] Activists regularly target meat processing as a source of mistreatment of animals. [504] The movement has changed the way that cattle are handled in transport, feedlots, and slaughterhouses.[505] Further, major producers consistently advertise their practices in assuring humane treatment of the cattle that pass through their operations.[506] Concern

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*Lobby*, FOREIGN POLICY (July 26, 2007 3:20 PM), https://foreignpolicy.com/2007/07/26/the-power-of-the-farm-lobby/ (describing political power of farm lobby, in general, and with respect to farm subsidies).

500. *See* Daniel Nash, *Cargill Announces Commitment to Reduce Greenhouse Gas Emissions Across its North American Beef Supply Chain*, CARGILL (July 24, 2019), https://www.cargill.com/2019/cargill-announces-commitment-to-reduce-greenhouse-gas-emissions ("Over the next three years, Cargill and TNC will work hand-in-hand with farmers and ranchers to demonstrate how grazing management planning and adaptive management improves sustainability outcomes related to soil, carbon storage, vegetation, wildlife habitat, water, and other ecological parameters.").

501. *See* Rachel Nuwer, *Raising Beef Uses Ten Times More Resources Than Poultry, Dairy, Eggs or Pork*, SMITHSONIAN (July 21, 2014), https://www.smithsonianmag.com/science-nature/beef-uses-ten-times-more-resources-poultry-dairy-eggs-pork-180952103/ ("[C]easing to eat meat altogether may be the best choice for the planet."; making arguments that beef production is an inefficient use of resources and a major source of greenhouse gasses).

502. *See History*, AM. HUMANE, www.americanhumane.org/about-us/history (last visited Oct. 30, 2019) (reporting that American Humane Society resulted in 1877 merger of several organizations concerned with the treatment of farm animals).

503. *See* John F. Burns, *Fur Industry Shrinking with No End in Sight*, N.Y. TIMES (Feb. 26, 1991) (reporting decline of industry, due in large part, to an international coalition of animal rights advocates).

504. *See Factory Farming: Misery for Animals*, PETA (last visited Sept. 28, 2019), https://www.peta.org/issues/animals-used-for-food/factory-farming/ ("On today's factory farms, animals are crammed by the thousands into filthy, windowless sheds and stuffed into wire cages, metal crates, and other torturous devices. These animals will never raise their families, root around in the soil, build nests, or do anything that is natural and important to them. Most won't even feel the warmth of the sun on their backs or breathe fresh air until the day they're loaded onto trucks headed for slaughterhouses.") (concluding with call a for "vegan lifestyle").

505. *See* P. M. Seng & R. Laporte, *Animal Welfare: The Role and Perspectives of the Meat and Livestock Sector*, 24 REV. SCI. TECH. 613, 615 (2005), https://pdfs.semanticscholar.org/74b7/a3d7ccdc98b10cdd7fa93b55c3a20ae17b90.pdf (analyzing impact of animal rights concerns on the beef industry).

506. *See generally Animal Welfare vs. Animal Rights*, ANIMAL HANDLING (last visited Sept. 27, 2019), animalhandling.org (emphasizing industry's humane practices); *Animal*

with animal-rights and the beef industry suffers from an inherent contradiction, however: treating cattle well is one thing, but eventually killing them as a source for human food can be viewed — and is viewed by some — as the ultimate cruelty and deprivation of their rights.

So the animal rights movement is necessarily, at its heart, an anti-beef movement. The movement combines with the environmental and dietary forces to limit the demand for beef, and therefore the level of production — at least that is its purpose.

*Welfare*, CARGILL (last visited Sept. 27, 2019), https://www.cargill.com/news/animal-welfare ("[A]nimal welfare is one of our top priorities.").

* * *

# RESOLVING THE CROWDFUNDING CONUNDRUM: THE EXPERIENCE OF THE UNITED STATES AND SPAIN

BY: RAFAEL A. PORRATA-DORIA, JR.*

*The phenomenon known as crowdfunding has become an attractive alternative for businesses looking for investors without having to go through more well-established routes or without necessarily having to lure and impress professional investors. However, this new form of raising capital creates a series of issues and problems unique to crowdfunding, which has led to a struggle amongst governments to effectively regulate this new entrepreneurial opportunity. The crowdfunding conundrum government regulators are facing causes them to have to reconcile two contradictory missions: facilitating the acquisition of capital by businesses and protecting investors (and the market) from fraud and manipulation. This Article analyzes this conundrum from a United States ("U.S.") and Spanish perspective. I first describe the crowdfunding conundrum in general terms by explaining how crowdfunding (both consumer and accredited investor) works in practice and explore the major problems and issues that startup companies, investors, the market, and the state face in crowdfunding, which need to be resolved in a regulatory system. I will then describe and evaluate the current American and Spanish and proposed European regulatory solutions to the crowdfunding conundrum. I then conclude by evaluating whether and how well the United States' and Spain's regulations, as well as the European Union's ("EU") proposed regulations, have attempted to resolve the conundrum by balancing the risks and problems facing crowdfunding transactions.*

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## I. INTRODUCTION

"Crowdfunding" is generally understood to describe an increasingly widespread fundraising technique by means of which the Internet is used to raise funds for a particular goal from a large number of contributors.[1] Operating through platforms such as Kickstarter[2] and Indiegogo,[3] crowdfunding has been used extensively to raise capital for ventures involving charities,[4] movies,[5] art projects,[6] and new product development.[7] Some of the more unusual crowdfunding attempts have involved funding the Russian rebels' war against Ukraine[8] and paying off Greece's debt to the European Central Bank.[9] Although some of these campaigns have successfully raised the funds they sought,[10] many of them have failed to raise

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*Professor of Law, Temple University. I would like to thank Ms. Kennedy E. Munro, Temple Law '20, for her invaluable assistance.

1. Gerrit K.C. Ahlers et al., *Signaling in Equity Crowdfunding,* 39 ENTREPRENEURSHIP THEORY & PRAC. 955, 955 (2015); Darian M. Ibrahim, *Equity Crowdfunding: A Market for Lemons?*, 100 MINN. L. REV. 561, 567 (2015) [hereinafter Ibrahim, *Equity Crowdfunding*].

2. KICKSTARTER, https://www.kickstarter.com/ (last visited May 1, 2020).

3. INDIEGOGO, https://www.indiegogo.com/ (last visited May 1, 2020).

4. *See* Heath Druzin, *Crowdfunding Site to Host Veterans Day Charity Drive*, STARS & STRIPES (Oct. 18, 2015), https://www.stripes.com/news/veterans/crowdfunding-site-to-host-veterans-day-charity-drive-1.373633.

5. *See* Dave McNary, *'Super Troopers 2' Raises $4.4 Million Total in Fundraising Campaign*, VARIETY (Apr. 25, 2015, 9:27 AM), http://variety.com/2015/film/news/super-troopers-2-raises-4-4-million-total-in-fundraising-campaign-1201466155/.

6. *See* ARTHENA, http://www.arthena.com/ (last visited May 1, 2020) (labeling itself as "the first quantitative investment firm for art assets").

7. *See* Sacha Pfeiffer, *An 11-Year-Old's Idea Finds a Fan Base*, THE BOSTON GLOBE (Aug. 4, 2015, 7:56 PM), https://www.bostonglobe.com/business/2015/08/04/year-old-entrepreneur-expands-his-young-business/HJkBNFbMhBzbfXPQvuOnUL/story.html.

8. *See* Jo Becker & Steven Lee Myers, *Russian Groups Crowdfund the War in the Ukraine*, N.Y. TIMES (June 11, 2015), https://www.nytimes.com/2015/06/12/world/europe/russian-groups-crowdfund-the-war-in-ukraine.html (finding that more than a dozen groups in Russia have raised money in an online campaign to support Russian rebels in the war in Ukraine).

9. *See* Katie Rogers, *A Crowdfunding Campaign Tries to Save Greece*, N.Y. TIMES (June 30, 2015), https://www.nytimes.com/2015/07/01/world/europe/a-crowdfunding-campaign-tries-to-save-greece.html (stating that €487,000 was raised through a campaign on Indiegogo to help fund Greece's debt of €1.5 billion to the International Monetary Fund).

10. *See, e.g.*, Mahita Gajanan, *Travel Jacket Breaks Record Raising $9 Million on Kickstarter*, THE GUARDIAN (Sept. 3, 2015, 7:00 AM), http://www.theguardian.com/

any funds whatsoever.[11] This type of crowdfunding, often called "reward-based crowdfunding," appears to be subject to scant regulation.[12]

Startup companies have also taken advantage of crowdfunding. Many of such companies have raised capital by selling equity or equity-like participations in the company through an Internet platform to a large number of small investors.[13] This type of crowdfunding has become known as "equity crowdfunding"[14] and has been used extensively. Indeed, as of April 2012, startup companies, using thirty-nine Internet platforms mostly located in Ireland, Australia, and the United Kingdom, had raised $88 billion.[15] As we shall see below, crowdfunding presents a highly attractive funding alternative for startup companies for a number of reasons. First, raising capital through smaller investments, made by many non-professional investors (who are excited by the company's sales pitch), is more attractive than seeking professional investors because the non-professional investors are unlikely to be as demanding as the professional investors. Moreover, Internet investors are also easier to find than professional investors, since they find the company, and not vice versa. Additionally, crowdfunding allows startup companies to raise capital simply and cheaply, with little or none of the costly formalities currently required.[16] This last characteristic is critical, since most startup companies lack the knowledge, experience, and assets to hire experts to prepare extensive disclosure documents.[17]

Crowdfunding investors prefer a system that allows them to invest small

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technology/2015/sep/03/worlds-best-travel-jacket-kickstarter-record-funding; Arthur Nelsen, *World's Largest Ocean Cleanup Operation One Step Closer To Launch*, THE GUARDIAN (Nov. 13, 2015, 6:52 AM), http://www.theguardian.com/environment/2015/nov/13/worlds-largest-ocean-cleanup-operation-one-step-closer-to-launch ("[A]round half the scheme's initial €30m (£20m) budget has now been raised through online donations and wealthy sponsors.").

11. *See* Nell Frizzell, *Kickended: The Enthralling World of Crowdfunding Flops*, THE GUARDIAN (Nov. 14, 2014, 8:12 AM), https://www.theguardian.com/artanddesign/2014/nov/14/-sp-kickfunded-the-enhralling-world-of-kickstarter-crowdfunding-failures (highlighting a website called Kickended — an online archive of the many Kickstarter campaigns that failed to raise a single dollar).

12. *See* Ahlers et al., *supra* note 1, at 957.

13. *Id.* at 958; *see* CROWDFUNDER, https://www.crowdfunder.com/raise-capital (last visited May 1, 2020) (billing itself as a leader in equity crowdfunding that has raised capital for many companies from investors).

14. *See* Christine Hurt, *Pricing Disintegration: Crowdfunding and Online Auction IPOs*, 2015 U. ILL. L. REV. 217, 238–39 (2015) (defining equity crowdfunding as the sale of company interests to the general public on the Internet).

15. *Id.* at 242 n.141.

16. *See id.* at 220.

17. *See infra* p. 232.

amounts easily and with limited costs in companies whose products excite them, to communicate and exchange information with fellow investors, and to cash out their investment in an expeditious manner. At the same time, these investors have a strong desire for the investment system to be trustworthy and protect them from scams and frauds.[18] Despite its appeal and apparent ease of use, equity crowdfunding is a risky endeavor, since approximately ninety percent of all startup businesses in the United States fail within the first year.[19] Indeed, as we shall see below,[20] the crowdfunding phenomenon creates a series of issues and problems that make government regulation extremely challenging.

Crowdfunding presents a difficult conundrum for markets and regulations faced with two contradictory missions: facilitating the acquisition of capital by businesses and protecting investors (and the market) from fraud and manipulation.[21] Given the nature of crowdfunding and its actors, fulfilling both missions is very problematic. In order to facilitate the acquisition of capital by startup businesses through crowdfunding, regulators must make the process simple, quick, and affordable. This approach would involve implementing simple forms, limited disclosures, and low fees. Protecting investors and the market from fraud and manipulation, on the other hand, may be achieved by educating investors, requiring full disclosure of all material facts regarding the company and the offering,[22] establishing time constraints on sales to give both potential investors and the market time to absorb and evaluate the disclosed information and appropriately price the offering,[23] or limiting investments for small investors.[24] These tasks may be delegated to the market itself[25] or, in the case of crowdfunding, to the intermediary. Unfortunately, utilizing these investor protection mechanisms adds time, cost, and complexity to the capital acquisition process. The easier a regulator makes it for a startup company to raise capital by deregulating

18. *See infra* pp. 233–34.

19. MAX MARMER ET AL., STARTUP GENOME REPORT EXTRA ON PREMATURE SCALING 4 (2011), https://media.rbcdn.ru/media/reports/StartupGenomeReport2_Why_Startups_Fail_v2.pdf.

20. *See infra* Part III.

21. *See infra* pp. 236–37.

22. *See infra* pp. 236–37.

23. *See infra* pp. 236–37.

24. *See infra* Part III.

25. *See infra* note 118 (discussing how the NYSE Regulations work with the Financial Industry Regulatory Authority to enforce compliance by the companies listed on the New York Stock Exchange with federal rules and exchange rules meant to protect investors).

the process, the less protection investors have against fraud and manipulation.[26] Conversely, the more protection investors have against fraud and manipulation, the higher the cost and difficulty of raising capital.[27] In resolving the crowdfunding conundrum, these two interests need to be balanced so that companies participate in a capital acquisition process that provides them reasonable access to capital, and investors receive an appropriate level of protection against fraud and manipulation.

A number of countries have either recently adopted or are considering adopting legislation or regulations that will permit companies to raise capital through crowdfunding.[28] This Article will examine the attempts of two countries, the United States and Spain, to create a regulatory system that will resolve the crowdfunding conundrum.

In the United States, startup companies seeking to raise capital through crowdfunding before 2012 were unable to do so because the federal securities law prohibited the practice.[29] In December 2012, Congress passed a statute named the "Jumpstart Our Business Startups Act" ("JOBS Act"),[30] which completely eliminated this prohibition.

The JOBS Act permits crowdfunding transactions to be undertaken in two different ways. In Title II, the JOBS Act created an exemption to the 1933 Securities Act, which allows the sale of securities through an Internet platform to consumers, subject to a number of limitations.[31] In order to implement this exemption, the Securities and Exchange Commission ("SEC") issued an implementing regulation known as "Regulation Crowdfunding" ("Regulation CF").[32] I will refer to this process as "consumer crowdfunding." Title III of the JOBS Act also created a different exemption that authorized the creation of Internet platforms, which were authorized to sell securities, as long as the purchasers who utilized such platforms were wealthy individuals. I will refer to this process as "accredited investor crowdfunding."

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26. *See infra* Part III.

27. *See infra* note 120.

28. *See generally Commission Staff Working Document: Crowdfunding in the EU Capital Markets Union, at 34, SWD (2016) 154 final (Mar. 5, 2016) [hereinafter Staff Working Document] (listing and describing crowdfunding regimes of eight member-states of the European Union).*

29. *See infra* notes 90–103 and accompanying text.

30. Jumpstart Our Business Startups (JOBS) Act of 2012, Pub. L. No. 112-106, 126 Stat. 306.

31. *Id.*

32. Crowdfunding, 80 Fed. Reg. 71,388 (proposed Nov. 16, 2015) (to be codified at 17 C.F.R. pt. 200).

Accredited investor crowdfunding has been in use in the United States since 2013, and reports indicate that 1,929 companies raised $118 billion through Internet offerings between September 2013 and September 2014 alone.[33] For consumer crowdfunding, the situation has been very different. The JOBS Act's consumer crowdfunding provisions could not become effective until the SEC issued implementing regulations, which were adopted on October 30, 2015. These regulations, known as Regulation CF were finalized on November 16, 2015 and became effective on May 16, 2016.[34] Accordingly, consumer crowdfunding is a very recent phenomenon in the United States.

Spain's legal system, which is based on the civil law tradition, did not permit crowdfunding until 2015.[35] At that time, Spain enacted a statute known as the "Ley de Fomento de la Financiación Empresarial,"[36] whose Title V authorizes and regulates the sale of securities through crowdfunding transactions.[37] Although the Spanish crowdfunding statute resembles its U.S. counterpart, a number of its provisions present different solutions to some of the regulatory problems presented by crowdfunding.[38] The EU has also recently circulated a draft regulation that seeks to resolve the crowdfunding conundrum by proposing to establish a European crowdfunding regime, which would supplement national crowdfunding regulatory systems and introduce innovative regulatory ideas.[39]

In Parts II and III of this Article, I will describe the crowdfunding conundrum in general terms by explaining how crowdfunding (both consumer and accredited investor) works in practice and explore the major problems and issues that startup companies, investors, the market, and the state face in crowdfunding, which need to be resolved in a regulatory system. I will then describe and evaluate the current American, Spanish, and proposed European regulatory solutions to the crowdfunding conundrum in Parts IV, V, and VI. Finally, in Part VII, I will draw from this experience

33. OFFERBOARD, EQUITY CROWDFUNDING UNDER TITLE II OF THE JOBS ACT: THE FIRST YEAR 5 (2014) [hereinafter OFFERBOARD] (on file with author); Erin Hobey, *OfferBoard CEO and CFIRA Chair Chris Tyrrell Presents at DC Growth Summit Update*, CROWDFUND INSIDER (Nov. 21, 2014, 12:33 PM), https://www.crowdfundinsider.com/2014/11/56719-growth-summit-update-chris-tyrrell/.

34. Crowdfunding, 80 Fed. Reg. at 71,388.

35. Andrea Rey-Marti et al., *Crowdfunding and Social Entrepreneurship: Spotlight on Intermediaries*, 11 SUSTAINABILITY 1175, 1179 (2019).

36. Law of Promoting Business Financing arts. I–V (B.O.E. 2015, 4607) (Spain).

37. *See id.* (discussing participatory financing platforms).

38. *See infra* Part V.

39. *See infra* Part VI.

and offer general conclusions and recommendations.

## II. WHAT IS CROWDFUNDING?

Crowdfunding is an "increasingly widespread form of fundraising" where a large number of individuals pool their money (usually through an Internet platform) to support a specific goal.[40] It has been used extensively for non-profit fundraising, often with the offer of a non-monetary reward in exchange for a contribution.[41] As noted before, crowdfunding has been used extensively to raise capital for ventures involving charities,[42] movies,[43] art projects,[44] and new product development.[45]

### *A. Consumer Crowdfunding*

Crowdfunding has also become attractive to startup companies as a way to raise general equity capital, as opposed to funding a particular project or product.[46] This use of crowdfunding, known as equity crowdfunding, involves an entrepreneur or startup company selling debt, equity, or equity-like participations to a large number of small investors through an open call for funding on an Internet platform.[47]

As of April 2012, thirty-nine Internet platforms in the United States, United Kingdom, France, Australia, Spain, Belgium, and Ireland had raised eighty-eight million dollars in equity financing.[48] Most of this activity took place in Internet sites located in Ireland, Australia, and the United Kingdom.[49] In the United States, "consumer crowdfunding" was not available until 2016 because the SEC had not yet promulgated the implementing regulations, which were not approved until November 16, 2015.[50]

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40. Ahlers et al., *supra* note 1, at 955.

41. *See* Hurt, *supra* note 14, at 233 (describing five general categories of crowdfunding that do not invite legal challenges).

42. *See* Druzin, *supra* note 4 (detailing crowdfunding efforts for veterans' charities).

43. *See* McNary, *supra* note 5.

44. *See* ARTHENA, *supra* note 6 (discussing crowdfunding efforts for art projects).

45. *See* Pfeiffer, *supra* note 7.

46. *See* Howard Marks, *What is Equity Crowdfunding?*, FORBES (Dec. 19, 2018, 8:00 AM), https://www.forbes.com/sites/howardmarks/2018/12/19/what-is-equity-crowdfunding/#2c75f8163b5d.

47. *See* Hurt, *supra* note 14, at 238–39.

48. *Id.* at 242 n.141.

49. *Id.*

50. *See id.* at 246–47; Press Release, SEC, SEC Adopts Rules to Permit Crowdfunding (Oct. 30, 2015), https://www.sec.gov/news/pressrelease/2015-249.html.

The Australian Small-Scale Offering Board ("ASSOB") Internet platform provides one example of how consumer crowdfunding works. First, potential investors register with the website, provide certain personal information, and confirm that they are aware of the risks associated with investing in startups.[51] Once registered, the potential investor can look at the platform that provides general information about each investment.[52] Once a registered investor clicks on an individual investment, she can download specific information about the company, located in an offering document, which usually includes investment highlights, business model, market analysis, details and purpose of the project, ownership structure, minimum investment sought, and company management structure.[53] To invest, the investor makes a ten percent deposit, which is retained by the platform.[54] The remaining ninety percent is owed when the minimum number of shares noted in the call is sold.[55] If the minimum number of shares is not sold within the time frame specified in the offer, then the deposit is refunded.[56]

One of the largest consumer crowdfunding sites in the United States, Wefunder,[57] has a very simple investment process. A potential investor seeking to invest no more than $2,000 opens an account online by submitting her name and address and acknowledging that she understands the nature of crowdfunding investments,[58] especially their risk and lack of liquidity.[59] Once she has opened an account, she may browse the website for investment offerings and click to invest.[60]

A typical entry for a crowdfunding offer has a snapshot of the business, a description of its product or products under development, a description of its

51. *Creating Account*, ENABLEFUNDING, https://www.enablefunding.com/ (follow "Sign up" hyperlink; then follow "Register as an accredited investor" hyperlink) (last visited May 1, 2020).

52. *FAQs,* ENABLEFUNDING, https://www.enablefunding.com/faqs/ (follow "I would like to understand more about investing into unlisted potentially high-growth opportunities. Are there seminars or presentations I can attend" hyperlink) (last visited May 1, 2020).

53. *Invest*, ENABLEFUNDING, https://www.enablefunding.com (follow "Invest" hyperlink to browse the different companies looking to raise funding).

54. Ahlers et al., *supra* note 1, at 964.

55. *Id.* at 964–65.

56. *Id.* at 965.

57. *See* WEFUNDER, https://wefunder.com/ (last visited May 1, 2020) (stating there has been over $132.5 million raised by 560,469 investors).

58. *See Getting Started*, WEFUNDER, https://help.wefunder.com/#/getting-started-for-investors (last visited May 1, 2020) (answering FAQs regarding investment risks).

59. *Id.*

60. *See id.* (discussing the investment process).

management team and principal investors, a description of the principal risks associated with the investment, and a link to Form C that the company filed with the SEC.[61]

### *B. Accredited Investor Crowdfunding*

A second crowdfunding alternative, used in the United States since 2012, when the JOBS Act specifically permitted the practice, is what is often referred to as "accredited investor crowdfunding."[62]

Accredited investor crowdfunding has been described as a cyber-version of the traditional "angel investor" network, where a small group of investors, in addition to providing money, provide expertise, experience, advice contracts, handholding, and empathy, often through repeated contact with the startup.[63] Within traditional "angel networks," there is usually an individual or a small group that provides most of this assistance.[64] The rest of the group usually relies on the judgment and research of the lead investor, and its participation in the venture is essentially limited to furnishing capital.[65]

Only "accredited investors" may participate in this type of crowdfunding investment.[66] As used in the United States, the term "accredited investor" is defined as including individual investors with a minimum net worth of one million dollars (excluding her primary residence) or an investor with annual income of over $200,000 a year (or $300,000 a year if married), as well as certain institutions with assets in excess of ten million dollars.[67]

Approximately 1,929 companies reported using accredited investor crowdfunding between September of 2013 and September of 2014.[68] These offerings, made through platforms like AngelList and FundersClub, raised approximately $118 billion during that time.[69]

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61. *See Explore*, WEFUNDER, https://wefunder.com/explore (last visited May 1, 2020) (listing the companies currently fundraising).

62. *See* Jumpstart Our Business Startups (JOBS) Act of 2012, Pub. L. No. 112-106, 126 Stat. 306.

63. *See* Ibrahim, *Equity Crowdfunding*, *supra* note 1, at 575, 582–83.

64. *See* Darian M. Ibrahim, *The (Not So) Puzzling Behavior of Angel Investors*, 61 VAND. L. REV. 1405, 1418 (2008) (stating that angel investors provide 80 percent of early-stage funding).

65. *See id.* at 1424 n.89.

66. *See* Ibrahim, *Equity Crowdfunding*, *supra* note 1, at 585 (stating AngelList "only allows accredited investors who can help a startup in tangible ways").

67. SEC Regulation D, 17 C.F.R. § 230.501 (2019).

68. Hobey, *supra* note 33.

69. *Id.*

How does accredited investor crowdfunding work? This process can be illustrated by examining two of the more well-known accredited investor crowdfunding platforms, FundersClub[70] and AngelList.[71] For both of these platforms, the SEC has concluded that, given their organization and operations, they were not operating as broker-dealers and were, therefore, not required to register as such under the securities laws.[72] This finding relieves accredited investor crowdfunding sites from the extensive cost and regulatory burden that broker-dealers are subject to, giving them a substantial competitive advantage.[73]

Only accredited investors may invest through AngelList and FundersClub.[74] These investors must first register with the website. Both platforms will take affirmative steps before completing the registration of a potential investor to confirm her accredited investor status.[75] On both platforms, the investor will invest through vehicles that will hold all of the ownership and control rights in the investment completed through the website.

Both FundersClub and AngelList have major differences in process and structure.[76] FundersClub has an investment committee that performs a due

70. FUNDERSCLUB, https://fundersclub.com/ (last visited May 1, 2020).

71. ANGELLIST, https://angel.co/ (last visited May 1, 2020).

72. *See* FundersClub, Inc. and FundersClub Mgmt. LLC, SEC No-Action Letter, 2013 WL 1229456 (Mar. 26, 2013); AngelList LLC and AngelList Advisors LLC, SEC No-Action Letter, 2013 WL 1279194 (Mar. 28, 2013) (noting that AngelList does not receive direct compensation and therefore is not operating as a broker-dealer).

73. Ibrahim, *Equity Crowdfunding*, *supra* note 1, at 603.

74. *Help: Accreditation*, ANGEL LINK, https://angel.co/help/accreditation (last visited May 1, 2020); *see How Do I Start Investing With Funders Club?*, FUNDERSCLUB, https://support.fundersclub.com/hc/en-us/articles/204968777-How-do-I-start-investing-with-FundersClub- (last visited May 1, 2020) (stating the requirements to become an accredited investor on the websites).

75. *See* AngelList LLC and AngelList Advisors LLC, SEC No-Action Letter, 2013 WL 1279194 (Mar. 28, 2013) (showing how in a similar manner, the FundersClub website asks if you meet one or more of the requirements of an accredited investor); *see also FAQ*, FUNDERSCLUB, https://support.fundersclub.com/hc/en-us/articles/204968777-How-do-I-start-investing-with-FundersClub- (last visited May 1, 2020) (informing potential investors that if they do not meet the requirements of accredited investor status, then they will not be able to invest in fundraising campaigns listed on FundersClub); FundersClub, Inc. and FundersClub Management LLC, SEC No-Action Letter, 2013 WL 1229456 (Mar. 26, 2013); 15 U.S.C. 77d-1(a)(4) (2018) (requiring that intermediaries take steps to positively affirm that each investor understands the various risks involved in such an investment).

76. *Compare* FundersClub, Inc. and FundersClub Mgmt. LLC, SEC No-Action Letter, 2013 WL 1229456 (Mar. 26, 2013) (explaining that members may submit a non-binding interest inquiry on the website that allows members to withdraw until the fund closes), *with* AngelList LLC and AngelList Advisors LLC, SEC No-Action Letter, 2013

diligence examination of the companies whose offerings it chooses to list.[77] This investment committee also provides "angel services" to the companies whose offerings it lists.[78] AngelList, on the other hand, uses a "lead angel" who performs the due diligence examination, vets investors, and advises the company.[79] Angel List refers to this type of transaction as an "angel-advised" transaction.[80] AngelList investors can also invest in an "angel-followed" transaction. In this transaction, the lead angel does not take an active role with respect to advising the company and may not be aware that he or she is being followed.[81] In short, an investor can invest in a transaction in which another individual (such as Marissa Mayer, CEO of YAHOO) is investing[82] merely because that investor thinks that this particular individual is a knowledgeable investor.

## III. THE CROWDFUNDING CONUNDRUM

Crowdfunding presents a series of issues and problems that affect startup companies seeking financing, as well as potential investors and the state, acting as regulator of the investment markets.[83] In this section, I will consider these issues and problems for consumer crowdfunding transactions and for accredited investor crowdfunding transactions in that order.

### *A. Consumer Crowdfunding – The Company*

Startup companies face a number of problems and issues in raising capital. First, the principals of startup companies usually do not have sufficient

WL 1279194 (Mar. 28, 2013) (explaining that investors receive disclosure documents after signing a non-binding interest letter).

77. *About,* FUNDERSCLUB, https://fundersclub.com/about/ (last visited May 1, 2020).

78. AngelList LLC and AngelList Advisors LLC, SEC No-Action Letter, 2013 WL 1279194 (Mar. 28, 2013).

79. *See id.* (noting that a lead angel is an accredited investor).

80. *Help: Syndicates*, ANGEL INVESTORS, https://angel.co/help/syndicates/angellist-advisors (last updated Dec. 22, 2018) (mentioning that mentoring might be a better fit for a startup company because they can conceivably get the "right angel" with the "right" set of experience, skills, and contacts to advise them; however, this lead angel might not have as much experience as an investment committee that has vetted many different proposed transactions).

81. AngelList LLC and AngelList Advisors LLC, SEC No-Action Letter, 2013 WL 1279194 (Mar. 28, 2013) (explaining that the lead angel investor does not need to advise the Investment Vehicle or Portfolio Company).

82. *See Investors*, ANGELLIST, https://angel.co/people/investors (last updated Dec. 22, 2018).

83. *The Problems With Crowdfunding*, VOA NEWS (Nov. 20, 2015), https://learningenglish.voanews.com/a/perils-of-crowdfunding/3056706.html.

experience raising money, and they and the company have little or no access to bank credit.[84] When these companies start seeking funding, they are relatively small in size and do not necessarily want to raise large amounts of money. Some of the traditional methods of raising capital, such as bank loans or public offerings, are not available in this early stage.[85] Even if they were, these methods would generally be cost-prohibitive for a startup.[86] Moreover, startup companies are unlikely to have most of the financial and operational documentation required by professional investors or underwriters, such as audited financial statements.[87]

Since the majority of startup firms fail in the short term,[88] professional investors, such as venture capitalists, are unlikely to be interested in a small company unless the investment really looks like a "sure thing." Even if the professional investors would choose to invest in a startup, they are likely to underprice the company's stock in order to account for the risk associated with the investment. This underpricing would be unattractive to the company, since it would provide fewer funds than the company is seeking.

Since startup companies are unlikely to attract the interest of professional investors, they are also unlikely to be able to raise the amount of capital they need through financing techniques that do not involve a public offering, such as a private placement.[89] Crowdfunding therefore presents a highly attractive funding alternative for startup companies for a number of reasons. First, raising capital through smaller investments made by many non-professional investors (who are excited by their company's sales pitch) is more attractive than seeking professional investors because these non-professional investors are unlikely to be as demanding.[90] Moreover, Internet investors are also easier to find than professional investors since they find the company, and

84. *See* Joan MacLeod Heminway & Shelden Ryan Hoffman, *Proceed at Your Peril: Crowdfunding and the Securities Act of 1933*, 78 TENN. L. REV. 879, 880 (2011) (stating that regulatory requirements of owning a small business outweigh traditional financing methods).

85. *The Benefits of Crowdfunding,* FUNDABLE, https://www.fundable.com/learn/resources/guides/crowdfunding/the-benefits-of-crowdfunding (last visited May 1, 2020).

86. *See* Hurt, *supra* note 14, at 224–25.

87. Abraham J.B. Cable, *Mad Money: Rethinking Private Placements*, 71 WASH. & LEE L. REV. 2253, 2280 n.115 (2014) (noting a difficulty that is overcome by crowdsourcing).

88. MARMER ET AL., *supra* note 19.

89. *See* SEC Rule 506 Exemption, 17 C.F.R. § 230.506 (2016); *see also* SEC v. Ralston Purina Co., 346 U.S. 119, 120 (1953).

90. *See* Hurt, *supra* note 14, at 224–25 ("[C]rowdfunding could be an alternative to angel investing and venture capital investing that can cost founders managerial control.").

not vice versa. Additionally, crowdfunding allows startup companies to raise capital simply and cheaply, with little or none of the costly formalities currently required.[91] This last characteristic is critical, since most startup companies lack the knowledge, experience, and assets to hire experts to prepare extensive documentation.

*i. Investors*

Potential investors who have little or no experience in the markets are in a very different position from the companies that seek their funding and face a number of distinctive problems and risks. First, these investors are generally not financially sophisticated and do not have the expertise to evaluate an investment of their own.[92] Moreover, they also face information asymmetry: inexperienced investors lack the resources and information tools that professional investors utilize to evaluate investments.[93] For inexperienced investors, the cost and difficulty of acquiring this information may be very high; even if they could acquire the information necessary, they may not have the knowledge and experience to adequately evaluate the potential investments.[94] Because of this information, knowledge, and experience asymmetry, retail investors are at a disadvantage and cannot expect to have the same opportunities and returns as more sophisticated and resourceful investors.[95] When investing through Internet platforms, investors are therefore highly susceptible to fraud.[96]

Investors interested in consumer crowdfunding offerings are not likely to be high-net-worth individuals, and, therefore, they generally cannot afford to invest a substantial amount of money. Any loss on these investments will disproportionately affect these investors more than others since their loss will be a larger part of their assets, and the loss is a real possibility for these investors because investments in startups are very risky.[97] Crowdfunding

91. *The Benefits of Crowdfunding*, *supra* note 85.

92. Cable, *supra* note 87, at 2297–98.

93. *See id.* at 2279–80.

94. Ahlers et al., *supra* note 1, at 957, 968.

95. Tom C.W. Lin, *Reasonable Investor(s)*, 95 B.U.L. REV. 461, 484–86 (2015) (recommending that retail investors should not try to invest in individual securities but instead should invest passively over the long term using low-cost index funds and mutual funds that track the market widely because retail investors both have knowledge and experience limitations).

96. *See, e.g.*, Jean Eaglesham, *Crowdfunding Efforts Draw Suspicion*, WALL ST. J. (Jan. 17, 2013, 6:51 PM), https://www.wsj.com/articles/SB10001424127887323783704578247380848394600.

97. *See* Hurt, *supra* note 14, at 251–52.

investors also lack a convenient exit channel for their investment because they are more likely to need their money in the short term.[98] The lack of liquidity for most startup investments makes the question of how an investor gets her money back if she wants to leave a very difficult one to answer.[99]

On the other hand, crowdfunding enthusiasts point out that being part of the investment crowd has at least two advantages. First, being part of a large number of investors makes the analysis of information easier (the "wisdom of the crowd") and resolves some of the information asymmetry issues.[100] Second, the crowd could be very effective in identifying and stopping fraud since a large number of individuals with diverse skills and backgrounds are all looking at the same data and communicating with each other.[101] A downside of the wisdom of the crowd, however, is the so-called "herd effect," where all members of the crowd only hear and internalize one point of view, ignoring conflicting opinions.[102]

It appears that crowdfunding investors would prefer a system that would allow them to invest small amounts easily and with limited costs, to communicate and exchange information with fellow investors, and to liquidate their investment in an expeditious manner. On the other hand, it seems that these investors have a strong desire for the investment system to be trustworthy and protect them from scams and fraud. This protection would require a substantial (and costly) effort to vet these investments.[103]

*ii. Intermediaries*

Potential intermediaries, the websites that set up and manage the Internet platforms for equity crowdfunding transactions, also face several problems, the most critical one being profitability.[104] How will the platform generate revenue, and will this revenue be sufficient to cover all costs and generate a

98. Ahlers et al., *supra* note 1, at 971.

99. *Id.* at 963–64.

100. *See* Hurt, *supra* note 14, at 252 n. 207.

101. *See id.* at 257 (citing Steven M. Davidoff, *Trepidation and Restrictions Leave Crowdfunding Rules Weak*, N.Y. TIMES DEALBOOK (Oct. 29, 2013, 5:10 PM), http://dealbook.nytimes.com/2013/10/29/trepidation-and-restrictions-leave-crowdfunding-rules-weak/).

102. *The Herd Effect in Financial Markets*, QUANTDARE (Feb. 11, 2017), https://quantdare.com/the-herd-effect-in-financial-markets/ (explaining that although investors are aware of the actions of their predecessors, each investor ultimately makes their own decisions and can sometimes ignore signals from their predecessors).

103. *E.g.*, Hurt, *supra* note 14, at 241 (explaining that these institutions tried to avoid regulation by registering with the SEC).

104. *Id.* at 237.

profit? Possible sources of revenue include listing fees for sellers, subscription fees, commissions, and equity stakes in firms whose securities are listed.[105] However, given the typical small size of crowdfunding offerings and transactions, these fees and commissions are likely to be small.[106] Therefore, increasing the volume of listings and transactions and keeping all costs (including regulatory costs) down is essential. Intermediaries are unlikely to tolerate high levels of regulation, since high levels of regulation will increase compliance costs. [107]

Given the inexperience and information asymmetry of both sellers and buyers in a crowdfunding market along with the high rate of failure of startup companies, it is more than likely that many crowdfunded investments will be unsuccessful.[108] In fact, some critics claim that crowdfunding could help bad businesses get off the ground before they inevitably fail.[109] There is also a real risk of fraud in a market full of unsophisticated investors.[110] This situation presents potential liability to an intermediary, which could find itself the target of litigation by an unhappy investor, who may think that the listing of a company's offerings in the platform represents some guarantee of solvency or stability.

Careful vetting of all potential listings by the intermediary may minimize this risk, so that only the "least risky" and "safest" offerings are listed on the site.[111] This vetting process is costly and may result in the listing of fewer investments, reducing the profitability of the platform. Another possible risk-reduction technique would include careful vetting of all potential investors using the platform by its intermediary, to ensure that the investors

105. *See generally* 17 C.F.R. § 227.503(a) (2015) (detailing disqualifying provisions); *id.* § 227.100(b)(1) (describing the applicability of the crowdfunding exception); *id.* § 227.300(b) (providing requirements for intermediaries).

106. Heminway & Hoffman, *supra* note 84, at 930 (stating that regulatory schemes may have too remote of benefits for crowdfunding investments because of the small number of units and the small aggregate dollar value).

107. *See id.* at 930.

108. *See* Cable, *supra* note 87, at 2279–80; *see also* Amy Cortese, *The Crowdfunding Crowd is Anxious*, N.Y. TIMES (updated Feb. 20, 2013, 2:18 PM), https://www.cnbc.com/id/100356643.

109. Cortese, *supra* note 108 (stating that both startups and crowdfunding present high risks of fraud and failure).

110. Eaglesham, *supra* note 96 (reporting a study from the National Association of Securities Administration, which found that 9,000 website names containing the word "crowdfunding", and of the 2,000 that were reviewed, 200 merited further investigation to determine if they were fraudulent).

111. *See* Hurt, *supra* note 14, at 244 (citing the Securities Act of 1933 § 5, 15 U.S.C. § 77d-1(a)(8)–(12) (2018).

understand the general risks of investing in the stock market and the particular risks of investing in startup companies. Investor vetting is also likely to be costly, and online investor vetting may be ineffective in reducing the risk of disappointed investor litigation.

A potential crowdfunding intermediary will therefore be entering a business with potentially high costs, low profit margins, and a high risk of potential liability. This business model is not a very attractive one.[112] However, investment banking firms may be natural candidates for crowdfunding intermediaries. Since they are experienced in the securities business and have an established online, sales, regulatory, and compliance infrastructure, they will have much lower setup and operation costs. Crowdfunding would open up a previously unserved additional market niche, which may, in the long term, expand a firm's business into other areas.[113] It may also, however, increase a firm's exposure to liability, given the riskiness of crowdfunding investments.

*iii. Markets and Regulators*

Markets and their regulators, on the other hand, face a tough situation. They are faced with two contradictory missions: facilitating the acquisition of capital by businesses and protecting investors (and the market) from fraud and manipulation.[114] Given the nature of the crowdfunding process and its actors, fulfilling both missions is very difficult. In order to facilitate the acquisition of capital by startup businesses through crowdfunding, regulators must make the process simple, quick, and low cost. This approach would involve implementing simple forms, limited disclosures, and low fees. Protecting investors and the market from fraud and manipulation, on the other hand, may be achieved by educating investors, requiring full disclosure of all material facts regarding the company and the offering,[115] and establishing time constraints on sales to allow both potential investors and the market time to absorb and evaluate the disclosed information and appropriately price the offering,[116] or limiting investments for small

112. *See id.* at 245–46.

113. *See id.* at 222.

114. Heminway & Hoffman, *supra* note 84, at 927–28.

115. Securities Act of 1933 § 5.

116. *See id.* (requiring the issuer make the following information available to the potential investor within twenty-one days of the sale: administrative, financial condition and offerings, use of the proceeds, target amounts, the price of public securities, and ownership).

investors.[117] These tasks may be delegated to the market itself[118] or, in the case of crowdfunding, to the intermediary. Unfortunately, utilizing these investor protection mechanisms adds time, cost, and complexity to the capital acquisition process.[119] The easier a regulator makes it for a startup company to raise capital by deregulating the process, the less protection investors have against fraud and manipulation.[120] Conversely, the more protection investors have against fraud and manipulation, the higher the cost and difficulty of raising capital. These two interests need to be balanced, so that companies can partake in a capital acquisition process that provides them reasonable access to capital, and investors have an appropriate level of protection against fraud and manipulation. Unfortunately, the devil is in the details.

### *B. Accredited Investor Crowdfunding*

Investing in startup companies that seek capital from accredited investors through crowdfunding is also a risky endeavor.[121] These companies face a number of issues that are different from those companies seeking capital through consumer crowdfunding.

#### *i. Companies*

As noted above, a company seeking capital through accredited investor crowdfunding would list its securities on an Internet platform set up for that purpose.[122] Under the U.S. securities laws, it is the company's responsibility

117. *See* 17 C.F.R. § 227.100(a)(2) (2019).

118. *See NYSE Regulation*, N.Y. STOCK EXCHANGE, https://www.nyse.com/regulation (last visited May 1, 2020) (explaining that certain federal securities rules are enforced by the financial industry itself, in addition to compliance with the rules of any exchange that a company is listed on; NYSE Regulation, for example, works with the Financial Industry Regulatory Authority to enforce compliance by the companies listed on the New York Stock Exchange with federal rules and exchange rules meant to protect investors).

119. *See* Heminway & Hoffman, *supra* note 84, at 911 (discussing the costliness and timeliness of registration).

120. *See id.* at 936–37 (highlighting the potential for fraud in unregulated markets, even though it would be easier to raise capital with fewer regulatory barriers).

121. *See* Ibrahim, *Equity Crowdfunding*, *supra* note 1, at 573–74 (explaining that the risks of accredited investor crowdfunding generally involve lack of capital, extreme levels of uncertainty because of the nature of the startup itself and information asymmetry, lack of experience, and large agency costs).

122. *See supra* notes 74–76 (describing online platforms for accredited investor crowdfunding).

to verify an investor's accredited status.[123] In crowdfunding transactions, the company has to rely on the work done by the platform to verify that all investors are accredited investors.[124] This means that the company must take "reasonable steps" to ensure that the platform is appropriately determining that its investors are accredited.[125]

A company seeking to raise capital through accredited investor crowdfunding in the United States must also determine whether or not the platform through which it lists its securities for sale is required to register as a broker-dealer under the securities laws.[126] A company that sells securities through an unregistered broker-dealer, whether through the Internet or not, gives its buyers the right to buy back their shares at the price for which they were sold.[127] This outcome may be a source of economic disaster for the company. [128]

On the other hand, accredited investor crowdfunding is an attractive option for a startup company. As discussed above, the company does not have to incur the costs, in regards to both time and money, of disclosing information to individual investors, issuing stock to them, and managing the relationship.[129] Instead, they deal with either an investment committee or a sophisticated and experienced investor whose hand they do not have to hold and who will provide valuable mentoring and networking.[130] Moreover, since the individuals who invest in accredited investor crowdfunding tend to be wealthy and/or sophisticated, the likelihood of litigation from an unhappy investor who may not have understood the nature of the risks which he was undertaking might be less than in consumer crowdfunding.

Accredited investors who participate in crowdfunding are also investing in highly risky ventures that are highly illiquid and long-term investments.[131]

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123. *See* Kristen A. Young, *Compliance With the Securities Laws in Crowdfunded Securities Offerings: Startups It's Your Responsibility!*, 34 REV. BANKING & FIN. L. 581, 585 (2015); 17 C.F.R. § 230.506(c)(2)(ii) (2014).

124. *See* Young, *supra* note 123, at 588.

125. *See id.*

126. *See id.* at 592.

127. *See id.* at 591–92.

128. *See id.* at 601–05 (detailing the Neogenix Oncology, Inc. case in which a startup's issuance of common stock through unregistered dealers, and the threat of rescission by its investors, resulted in enough risk to prevent the startup from raising sufficient capital and forced it into bankruptcy).

129. *See* Ibrahim, *Equity Crowdfunding*, *supra* note 1, at 585–86.

130. *Id.* at 583; *see supra* Part III.A (discussing the factors making crowdfunding — though not necessarily accredited investor crowdfunding — attractive to startups).

131. *See* Usha Rodrigues, *Securities Law's Dirty Little Secret*, 81 FORDHAM L. REV. 3389, 3401, 3428 (2013).

Indeed, the investor receives a return at some point (usually determined by someone else) and, if she is lucky, will obtain a profit. She generally does not have the ability to dispose of her individual interest and has little or no say on the timing of this disposal.[132] Moreover, information asymmetry is also a problem for the investor regarding the nature of the investment.[133] These are opaque investments held by an intermediary that does not provide the kind of information or analysis typically available for other types of investments.[134] A more serious issue, as many commentators in the United States have noted, is the fact that even accredited investors are often unable to understand the risks involved in investing in a startup.[135]

In U.S. securities law, the accredited investor concept is based on the assumption that, because certain investors are "sophisticated" (a term that lacks a clear definition), they are thus able to understand the nature of the risk.[136] Therefore, since they are wealthy, and able to assume the risk of failure, they do not need the protection of securities law.[137] This concept has evolved from one where the investor needed to be *both* wealthy and sophisticated[138] to one where the investor has to be wealthy alone.[139]

Currently, an accredited investor is an individual with a net worth of over

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132. *See id.* at 3410, 3428 (discussing the lack of investors' right to sell and the risk of potentially losing everything).

133. *See id.* at 3408 (accentuating concerns about information asymmetries arising in these markets because "buyers and sellers may have vastly different levels of information").

134. *See id.* at 3405, 3428.

135. *See id.* at 3422–23 (pointing out that wealthy does not necessarily equate with sophisticated).

136. *See* SEC v. Ralston Purina Co., 346 U.S. 119, 125–26 (1953).

137. *See id.* at 125; *see also* Robert B. Thompson & Donald C. Langevoort, *Redrawing the Public-Private Boundaries in Entrepreneurial Capital Raising*, 98 CORNELL L. REV. 1573, 1583 (2013).

138. *See* Notice of Adoption of Rule 146 Under the Securities Act of 1933: "Transactions by an Issuer Deemed Not to Involve Any Public Offering," Securities Act Release No. 5487, 4 SEC Docket 154 (Apr. 23, 1974).

139. *See* 17 C.F.R. § 230.501(a) (2013). One commentator has noted that several flaws exist with a wealth-based test for financial sophistication. Net wealth itself may not be an accurate indication of the investor's sophistication or ability to bear the risk. Wealth alone is not a guarantee that an investor will be unable to avoid opportunistic brokers or fraudulent schemes. Furthermore, the current accredited investor definition is both over- and under-inclusive in scope. Otherwise financially knowledgeable investors are deemed unaccredited because they do not meet the minimum wealth requirements, and, conversely, financial novices may be deemed accredited merely by the possession of wealth. *See* Wallis K. Finger, *Unsophisticated Wealth: Reconsidering the SEC's "Accredited Investor" Definition Under the 1933 Act*, 86 WASH. U.L. REV. 733, 748 (2009).

$1,000,000 or who has over $200,000 in yearly income,[140] and the amounts have not been adjusted for inflation. So, upper middle-class investors, including senior citizens with large pension funds, may meet the asset or income requirement of the rule and be able to be classified as "wealthy" and thus accredited investors.[141] Unfortunately, wealth alone does not necessarily indicate that an investor has the ability to appreciate the nature of the risk.[142] Moreover, given the complicated nature (or opacity) of some investments,[143] anecdotal evidence suggests that the ability of most "accredited investors" to be able to fend for themselves is a fiction.[144]

This distinction is especially critical since, as a condition of being exempted from registration as a broker-dealer, accredited investor crowdfunding platforms are not allowed to give any investment advice to their investors.[145] Moreover, the wider the solicitation and the larger the number of passive investors, the greater the possibility of active-investor opportunism or fraud at the expense of passive investors.[146]

## IV. CROWDFUNDING IN THE U.S. REGULATORY SYSTEM

### *A. The U.S. Regulatory System Before the JOBS Act*

Under federal securities law, the general rule is that any sale or offer of a

140. 17 C.F.R. § 230.501(a)(5)–(6).

141. Thompson & Langevoort, *supra* note 137, at 1611–12, 1618 (discussing the SEC's "wealth alone" requirement — which was promulgated on the assumption that wealthier investors are more familiar with financial risks — and explaining how seniors with retirement savings meeting the regulatory thresholds are particularly vulnerable).

142. *See id.* at 1161.

143. *See The Con of the Century*, THE ECONOMIST (Dec. 18, 2008), http://www.economist.com/node/12818310 (discussing the Madoff scandal in which many extremely wealthy investors — indeed, even some banks, such as Santander and HSBC — invested without much complaint in what turned out to be an enormous Ponzi scheme); *see also* Kurt Eichenwald, *Scandal's Cost to Prudential Tops $1.4 Billion*, N.Y. TIMES (Apr. 22, 1995), https://www.nytimes.com/1995/04/22/business/scandal-s-cost-for-prudential-tops-1.4-billion.html (discussing the Prudential-Bache Securities scandal in which limited partnerships were fraudulently sold to hundreds of thousands of people).

144. *See* Thompson & Langevoort, *supra* note 137, at 1617.

145. *See* 17 C.F.R § 227.402 (2019); *see also* 15 U.S.C. § 78c(a)(81)(a) (2018); 15 U.S.C § 77d(a)(6)(2018).

146. *See* Thompson & Langevoort, *supra* note 137, at 1617 ("[A]s distributors of securities move from bargaining with a small group of buyers to mass marketing directed at a large, dispersed group of well-off retail investors, the likelihood of successful opportunism grows . . . the presence of a critical mass of sophisticated buyers will reduce the likelihood of opportunism even if we assume some unsophisticated buyers.").

security (a very broadly defined term)[147] in interstate commerce may not be made unless the issuer registers these securities with the SEC by filing a registration statement.[148] The registration statement requires disclosure of a substantial amount of information about the company and the offering in a highly stylized form, including audited financial statements.[149]

The purpose of this requirement is multifaceted: to allow the investor to make an informed decision on an investment by giving her all material information about the company; to allow the market to make an accurate pricing decision based on the disclosed material information; and to prevent fraud.[150] At the same time, issuers are trying to raise capital as cheaply, quickly, and simply as possible.

For most startup companies, registration is not feasible for a number of reasons. First, the stock distribution method in the United States generally requires the services of one or more investment banks as underwriters in initial offerings of registered securities.[151] Since underwriters take a substantial financial risk in these transactions, they tend to be quite selective in choosing companies, and they exclude most applicants.[152] Second, the process is extremely expensive and includes numerous fees and commissions, so it is not the most cost-effective approach for raising small amounts of money.[153]

There are a number of exemptions to the registration requirements that can be used to sell securities without the filing of a registration statement.[154] These exemptions tend to be considerably more cost-effective and require less formalities.[155] However, these exemptions are generally *not* feasible for startups that are not financed by professional investors.[156] Some exemptions are still costly and complicated and therefore not feasible for a startup to use.[157] Most exemptions are also limited to a small number of sophisticated

147. *See* Securities Act of 1933 § 2(a)(1), 15 U.S.C. § 77c(a)(10) (2018).

148. *See* Securities Act of 1933 § 5(a)(1).

149. *See* 17 C.F.R. §§ 229.501-512 (2019); *see also* SEC FORM S-1 REGISTRATION STATEMENT UNDER SECURITIES ACT OF 1933, https://www.sec.gov/about/forms/forms-1.pdf (last visited Apr. 4, 2020).

150. H.R. REP. NO. 73-85, at 4–5 (1933).

151. *See* Hurt, *supra* note 14, at 225.

152. *See id.* at 225–27.

153. *See* C. Steven Bradford, *Crowdfunding and the Federal Securities Laws*, 2012 COLUM. BUS. L. REV. 1, 42–43 (2012).

154. 17 C.F.R. §§ 230.504, 505, 506 (2019).

155. *See* Bradford, *supra* note 153, at 48.

156. *See id.*

157. *See* 17 C.F.R. § 230.251–63.

investors.[158] Other exemptions limit the number of investors or forbid general solicitation or advertisement, which would preclude the sale to a large number of investors or the use of an Internet platform.[159] Intermediaries involved in the sale of securities are generally required under federal securities laws to register as an investment advisor or investment company,[160] which would make them subject to a substantial regulatory framework and would bring additional costs and potential liability.[161] The anti-fraud provisions of the securities laws also create a substantial amount of risk, both to the intermediaries and the sellers. Some of this potential liability becomes criminal in certain situations.[162]

### *B. The JOBS Act*

The JOBS Act was passed by Congress in late 2012.[163] It created two different types of crowdfunding: one ("Section 506C crowdfunding") would apply only to wealthy individuals who qualify as accredited investors (referred to in this Article as "accredited investor crowdfunding"),[164] and one that can be used for crowdfunding from individuals who have a lower annual income or net worth (referred to in this Article as "consumer crowdfunding").[165] The SEC, in accordance with a mandate set forth in the statute,[166] has issued regulations to implement its consumer crowdfunding provisions.[167]

One question that arises is why the JOBS Act creates two different crowdfunding systems instead of one.[168] I believe that the statute tried to

158. *See* 17 C.F.R. § 230.506.

159. *See id.*

160. *See* 15 U.S.C. § 77d-1(a)(1) (2019); *see also* Securities Exchange Act of 1934 § 3(a)(80), 15 U.S.C. § 78c(a)(80) (2019).

161. *See* 17 C.F.R. §§ 227.300, 227.400 (2018).

162. *See, e.g.*, Securities Exchange Act of 1934 § 20(b), 15 U.S.C. § 78t(b) (2018); Securities Exchange Act of 1934 § 32, 15 U.S.C. § 78ff(a) (2018); Securities Act of 1933 § 24, 15 U.S.C. § 77x (2018).

163. *See* Jumpstart Our Business Startups (JOBS) Act, H.R. 3606, 112th Cong. (2012).

164. *Id.* § 201.

165. *Id.* §§ 302(a)(6)-(b)(5).

166. *Id.* § 602.

167. *See* Crowdfunding, Jumpstart Our Business Startups Act Release Nos. 33-9974 and 34-76324 10 (Oct. 30, 2015).

168. *Compare* Jumpstart Our Business Startups (JOBS) Act, Pub. L. No. 112-106, § 201, 126 Stat. 306, 313–15 (2012) (codifying accredited investor rules), *with* Jumpstart Our Business (JOBS) Startups Act, Pub. L. No. 112-106, §§ 302(a)(6)–(b)(5), 126 Stat. 306, 315–18 (2012) (codifying exceptions to those rules).

solve the crowdfunding conundrum in two different ways because it responds to two different sets of problems. In the case of accredited investor crowdfunding, there was already a system in place that allowed individuals, perceived to be sophisticated investors, the ability to invest in startups through the private placement mechanism. The problem was that they were not allowed to do so through the Internet.[169] The Act therefore created a technical fix to allow private placement investments to be offered to accredited investors through the Internet.[170] With consumer crowdfunding, Congress understood that there was no mechanism in place allowing non-sophisticated investors to invest in startups through the Internet.[171] In order to do so, a new market and its underlying infrastructure needed to be created.

In the section below, I examine the statutory and regulatory framework that has enabled the creation of accredited investor and consumer crowdfunding.

*i. Accredited Investor Crowdfunding*

Title II of the JOBS Act permits the use of general solicitation (including the use of the Internet) to raise capital through private placements, as long as the investments are offered to accredited investors.[172] In addition to permitting the use of general solicitation in private placements, Title II of the JOBS Act provides relief from the requirement that an online platform register as a broker-dealer under the securities laws.[173] This exemption applies to private placements made under Regulation D of the 1933 Securities Act if:

> (a) that person maintains a platform or mechanism that permits the offer, sale, purchase or negotiation of or with respect to securities, or permits general solicitations, general advertisements or similar or related activities by issuers of such securities, whether online, in person or through any other means; (b) that person, or any person associated with that person, co-invests in such securities, or (c) that person or any person associated

169. *See* Crowdfunding, Jumpstart Our Business Startups Act, Release Nos. 33-9974 and 34-76324 7 (Oct. 30, 2015) (eliminating rules for the sale of securities that would have required the seller to register as a broker).

170. *See id.* at 7–8 (explaining the background of the new rules).

171. *Id.*

172. Jumpstart Our Business Startups (JOBS) Act § 201(a). *See generally* 17 C.F.R. § 230.501(a) (2019) (stating accredited investors are individual investors with a minimum net worth of one million dollars excluding primary residence, or an investor with annual income of over $200,000 ($300,000 joint income for married couples) as well as certain institutions with assets in excess of five million dollars).

173. *Id.* § 201(b)(1).

> with that person provides ancillary services in connection with those securities.[174]

The exemption only applies if:

> (a) such person and each person associated with it does not receive compensation in connection with the purchase or sale; (b) that person does not possess customer funds or securities in connection with the purchase or sale of such a security; and (c) the person is not statutorily disqualified under Section 3(a) (39) of [the Act].[175]

As noted above, companies seeking capital through accredited investor crowdfunding face two regulatory risks, which require that they ascertain that investors participating in the offering qualify as accredited investors and that the platform through which they are seeking to list their securities for sale is not required to register as a broker-dealer under the securities laws.[176] Moreover, a serious issue arises regarding investors in accredited investor crowdfunding transactions. These are risky investments that are also highly illiquid, complex, and opaque. Given the complexity of these investments and the large number of individuals who qualify as accredited investors under current law, investors may not, by their wealth alone, have the ability to appreciate the nature of the risk they are undertaking or determine whether a potential investment is unsuitable for them.[177] I, therefore, believe that the definition of "accredited investor" in Rule 501 of the Act[178] should be amended to provide that, in order to be considered an accredited investor, a person should, either by herself or through the help of an advisor, have sufficient knowledge and experience to understand the nature of the potential investments that she is considering.

*ii. Consumer Crowdfunding*

Title III of the JOBS Act creates a new exemption from the registration requirements in the 1933 Act (Section 4(6)) for transactions by an issuer that meet a number of criteria.[179]

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174. 15 U.S.C. §§ 77d (c)(1)(A)–(C) (2019).

175. *Id.* §§ (c)(2)(A)–(C).

176. *See, e.g.*, Crowdfunding, Jumpstart Our Business Startups Act, Release Nos. 33-9974 and 34-76324 7 (Oct. 30, 2015) (eliminating rules for the sale of securities that would have required the seller to register as a broker and discussing the regulatory requirements of accredited investor crowdfunding).

177. *See supra* notes 139–146 (discussing the risks associated with the definition of accredited investor).

178. 17 CFR § 230.501(a) (2019).

179. *See* Jumpstart Our Business Startups (JOBS) Act, Pub. L. No. 112-106, §§ 302(a)(6)(A)–(D), 126 Stat. 306, 315 (2012) (detailing issuer exemption requirements

*a. Provisions relating to sellers of securities*

Sellers of securities ("issuers") who seek to utilize this exemption may not currently crowdfund more than one million dollars in securities sold in a twelve-month period.[180] They must also file certain categories of financial and business information with the SEC and provide it to investors and brokers, or the funding platform. Financial information required to be disclosed includes: for solicitations of $100,000 or less, the last two tax returns and financial statements certified by the chief executive officer; for offerings of $100,000 to $500,000, financial statements reviewed by an independent certified public accountant; and for offerings over $500,000, audited financial statements.[181] Additional information that must be disclosed includes the stated purpose and intended use of the proceeds, the target offering amount, the price of the security and the method for determining the price, and the description of the ownership and capital structure of the issuer.[182] Issuers may not advertise the terms of the offering in any way, except through notices directing investors to an offering platform or broker.[183]

Issuers engaging in crowdfunded offerings are also required to file operational reports and financial statements as the SEC determines by regulation, at least annually.[184] The issuers may be subject to administrative, civil, or criminal liability for any fraud, material misstatements, or omissions in any disclosed information.[185] Investors may also recover damages from the issuer in a crowdfunded offering for material misrepresentations and omissions made by the issuer.[186]

Securities issued pursuant to a crowdfunding transaction are restricted and may not be transferred for a year unless they are transferred to the issuer, an accredited investor, as part of a registered offering, or to a family member or equivalent, in connection with a death or divorce.[187]

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under the JOBS Act).

180. 15 U.S.C. § 77d(a)(6)(A) (2018). On March 4, 2020, the SEC proposed increasing this amount to five million dollars. *See* Release Nos. 33-10763, 34-88321; File No. S7-05-20, *Facilitating Capital Formation and Expanding Investment Opportunities by Improving Access to Private Markets (March 4, 2020))* [hereinafter "2020 Proposed Regulatory Amendments"] at § 227.100(a)(1), p. 289.

181. 15 U.S.C.§§ 77d-1(b)(1)(A)–(D) (2018).

182. *Id.* §§ (b)(1)(E)–(H).

183. *Id.* § (b)(2).

184. *Id.* § (b)(4).

185. *Id.* §§ (c)(1)-(2).

186. *Id.* §§ (c)(2)(A)-(B).

187. *Id.* § (e).

*b. Provisions relating to investors in securities*

Title III limits the aggregate amount of securities that may be sold to any investor in a crowdfunded offering to not exceed in a twelve-month period either the greater of $2,000 or five percent of the annual income or net worth of an investor whose income or net worth is less than $100,000, or the lesser of ten percent of the annual income or net worth (not to exceed $107,000) if the investor's annual income or net worth exceeds $100,000.[188]

Each investor in a crowdfunded offering is required by the statute to review certain investor education information set forth in the offering platform. The investor will affirm that she is aware of the risk of losing the entire investment and that she can bear such a loss and answer questions showing an understanding of risk generally, and the risk of illiquidity in particular.[189]

*c. Provisions relating to intermediaries (Platforms)*

The statute also provides that any person acting as an intermediary in a crowdfunding transaction must register either with the SEC as a broker or a funding platform or with an applicable exchange or self-regulatory organization.[190] The statute further imposes several additional responsibilities on an intermediary.[191] First, the intermediary must ensure that each investor reviews the investor education information and affirms that she is aware of the risk of loss of the entire investment and that she can bear such a loss, and answers questions showing an understanding of risk generally, and the risk of illiquidity in particular.[192] Furthermore, the intermediary must provide to its clients any information provided by the issuer no later than twenty-one days before securities are sold.[193] Intermediaries are also required to take a number of steps to reduce the risk of fraud in crowdfunded transactions.[194] Intermediaries must ensure that all offering proceeds are provided to the issuer only when the aggregate capital raised is equal to or greater than a target offering amount and allow the

188. 15 U.S.C. § 77d(a)(6) (2018). The 2020 Proposed Regulatory Amendments would change this formula to the greater of 10 percent of the annual income or net worth of an investor whose annual income or net worth exceeds $107,000. 2020 Proposed Amendments, *supra* note 180, at §227.100 (a)(2)(ii), p.289.

189. 15 U.S.C. § 77d-1(a)(4) (2018).

190. *Id.* § 77d-1 (a)(1).

191. *Id.* §§ 77d-1(a)(4)–(7), (9)–(11).

192. *Id.* § 77d-1(a)(4).

193. *Id.* § 77d-1(a)(6).

194. *Id.* §§ 77d-1 (5), (9)–(11).

investors to cancel their investment.[195]

### *C. Regulation Crowdfunding*

The JOBS Act required the SEC to issue regulations to implement the consumer crowdfunding provisions of the JOBS Act no later than 270 days from the date of its enactment in April 2012.[196] In meeting this legislative mandate, the SEC issued draft regulations on November 5, 2013 ("the proposed regulations").[197] In accordance with U.S. administrative law, comments on these draft regulations were solicited from interested parties.[198] These draft regulations were finalized and published on November 16, 2015.[199] They are known as Regulation CF and became effective on May 16, 2016.[200] These regulations appear in Title 17, Part 200 of the Code of Federal Regulations.[201]

#### *i. Provisions relating to sellers of securities*

Regulation CF is quite extensive and greatly expands the statutory requirements relating to issuers. For example, issuers are required to file the information under Title II of the JOBS Act (and additional categories of information added by the regulations) with the SEC and with its funding platform in an Offering Statement filed on a new SEC Form C.[202] The issuer is required to amend this Offering Circular whenever there is a material change, update, or addition and must file progress reports after completing 50 percent and 100 percent of its intended funding target.[203] Moreover, issuers must continue to file annual reports of their operations and financial statements on a yearly basis until the company becomes public, repurchases all of the crowdfunded shares, or liquidates the business.[204]

Regulation CF also spells out the content of the notices that issuers may

195. *Id.* § 77d-1(7).

196. *See* Jumpstart Our Business Startups (JOBS) Act, Pub. L. No. 112-106, § 302(c), 126 Stat. 306, 320 (2012) (codifying the rulemaking requirements).

197. Crowdfunding, 78 Fed. Reg. 66428, 66428 (proposed Nov. 5, 2013) (to be codified at 17 C.F.R pt. 200, 227, 232, 239, 240, and 249).

198. *Id.*

199. Crowdfunding, 80 Fed. Reg. 71,388 (Nov. 15, 2015) (codified at 17 C.F.R pts. 200, 227, 232, 239, 240, 249, 269, and 274).

200. *See* Crowdfunding, 78 Fed. Reg. at 66428.

201. *See id.*

202. 17 C.F.R. § 227.201 (2016); 17 C.F.R. § 227.203 (2019).

203. 17 C.F.R. § 227.203(a)(3)(i) (2019).

204. *Id.* § 227.202(b).

use in directing investors to the intermediary's platform.[205] As set forth therein, the information that may be disclosed in these notices is very limited.[206]

The crowdfunding exemption also does not apply to issuers, officers, directors, shareholders with over twenty percent ownership stakes, or their partners or paid solicitors, who have violated or failed to comply with federal securities, banking, and bankruptcy regulations or who have been barred from a registered national securities exchange or national securities association.[207] The regulations also make it clear that consumer crowdfunding exemptions do not apply to issuers who are not organized under the laws of a state or territory of the United States, therefore limiting the availability of crowdfunding only to U.S. companies.[208]

Lastly, issuers of securities sold through a crowdfunding platform may not transfer them for one year after purchase, unless the securities are transferred to the issuer, to an accredited investor, as part of a registered offering, or to a family member under certain circumstances set forth in the proposed regulations.[209]

*ii. Provisions relating to intermediaries and transactions*

The regulation imposes a number of requirements and responsibilities on crowdfunding intermediaries. First, each crowdfunding platform must either register as a broker under the Securities Exchange Act of 1934, or as a funding platform in accordance with the regulation.[210] The intermediaries must also become members of a national securities association, which means that they would be subject to the disciplinary and dispute resolution practices of that association, which might include an obligation to arbitrate disputes.[211]

Foreign entities may register as a funding platform under certain conditions. First, there must be an information-sharing agreement in place between the SEC and the competent regulator in the jurisdiction in which the proposed foreign platform is registered. Second, the platform must appoint

205. *See* Crowdfunding, 80 Fed. Reg. at 71390.

206. 17 C.F.R. § 227.204(a) (2019).

207. *Id.* § 227.503(a).

208. *Id.* § 227.100(b)(1).

209. *Id.* § 227.501(a).

210. *See* SEC, *Registration of Funding Platforms* (Jan. 16, 2017), https://www.sec.gov/divisions/marketreg/tmcompliance/fpregistrationguide.htm.

211. *See* 17 C.F.R. § 227.300(a); *see, e.g.*, FINRA, Rule 12100-01 https://www.finra.org/arbitration-mediation/printable-code-arbitration-procedure-12000#12100 (defining terms used).

an agent for the service of process in the United States and certify that it is authorized, under the law of its jurisdiction, to provide the SEC with access to its books and records, submit to onsite inspections and examinations, and then must in fact permit such inspections and examinations by SEC representatives.[212]

Regulation CF also requires that intermediaries must deny access to the site to issuers in three different situations.[213] First, the intermediaries must deny access if they have a reasonable basis for believing that they or their principals are subject to disqualification under the regulations.[214] At a minimum, they must conduct a background and securities enforcement regulatory history check on each issuer and its principals.[215] Second, the platform must deny an issuer access to the platform if it has a reasonable basis for believing that the offering presents the potential for fraud or otherwise raises concerns regarding investor protection.[216] Last, the platform must deny access if it believes that it is unable to adequately or effectively assess the risk of fraud of the issuer or its potential offering. If the intermediary, after the offering, becomes aware of information that causes it to believe that the issuer or the offering present the potential for fraud, then the intermediary must remove and cancel the offering from its platform and refund any investor funds.[217]

Individuals wishing to invest in a crowdfunded offering must open an account with the intermediary prior to investment. As part of the account-opening process, the intermediary must give potential investors information that explains the investment process, the restrictions on resale of securities, the information issuers are required to provide, investment limitations, as well as risk and suitability criteria.[218] The intermediary may not, however, offer investment advice or recommendations to any potential investors.[219]

The regulation is quite specific with regard to the issue of intermediaries holding financial interests in the securities of the companies they list.

212. *See* 17 C.F.R. § 227.400(f).

213. *See* SEC, *Regulation Crowdfunding: A Small. Entity Compliance Guide for. Crowdfunding Intermediaries* (Jan. 16, 2017), https://www.sec.gov/divisions/marketreg/tmcompliance/cfintermediaryguide.htm.

214. *See* Dept. of Enforcement v. Dreamfunded Marketplace, LLC, Disciplinary Proceeding No. 2017053428201 (June 5, 2019), https://www.finra.org/sites/default/files/2019-07/OHO_DreamFunded_2017053428201.pdf.

215. *See id.*

216. *See id.*

217. *See* 17 C.F.R. § 227.301.

218. *See id.* § 227.302(b)(1).

219. *See id.* § 227.402(a).

Officers, directors, or partners of an intermediary may not have a financial interest in any issuer selling securities on the website or receive a financial interest in the issuer as compensation for services provided to the listed company.[220] An intermediary may, however, compensate a third party for referring a person to the funding platform, as long as the third party does not provide the intermediary with personally identifiable information of any potential investor and the compensation is not based, directly or indirectly, on the purchase or sale of a security offered on or through the intermediary's platform.[221] An intermediary may also pay or receive compensation to or from a broker or dealer for services provided in connection with the offer or sale of securities by the intermediary.[222] It may receive a financial interest in the entity whose securities are listed for sale on its website if the interest consists of securities of the same class as those being sold, which are given as compensation for services provided to the listing company in connection with the offer.[223]

Prior to listing an offering on the website, intermediaries are required to have a reasonable basis for believing that an issuer seeking listing on the website complies with the requirements of the securities laws and regulations.[224] The intermediaries must also have a reasonable basis for believing that the issuers listing on the website have established means to keep accurate books and records of the holders of the securities that it would offer and sell.[225] The regulations do provide that intermediaries may rely on issuers' representations about these facts.[226] Intermediaries must post on their website all information required to be submitted by the issuer under the statute and regulation for a period of twenty-one days before any securities are sold and retain it until the offer is either completed or cancelled.[227]

The regulations also require intermediaries to have a reasonable basis for believing that the investor satisfies the investment requirements established by the statute.[228] In order to do so, they must obtain the following from the

220. *See id.* § 227.300(b).

221. *See id.* § 227.402(b)(6).

222. *See id.* §§ 227.402(b)(6)–(8).

223. *See id.* § 227.300(b).

224. *See* SEC, *Frequently Asked Questions Regarding Regulation Crowdfunding and Intermediary Requirements* (Sept. 25, 2018), https://www.sec.gov/divisions/marketreg/tmcompliance/cfportal-faqs.htm.

225. *See id.*

226. *See* 17 C.F.R. §§ 227.301(a)–(b).

227. *See id.* § 227.303(a).

228. *See* SEC, *supra* note 224.

investor: (1) a representation that the investor has reviewed the educational materials delivered as part of the account opening process, understands that the entire amount may be lost, and that the investor is in a financial condition to bear such a loss; and (2) a completed questionnaire that demonstrates the investor's understanding of the restrictions on his or her ability to cancel an investment commitment and obtain a return of his or her investment, the difficulty of reselling the investment, and of the nature of the risks involved in the transaction.[229]

An intermediary must also provide on its platform a communications channel through which investors can communicate with each other and with representatives of the issuer about offerings made available on the platform. It may not participate in this channel other than to establish posting guidelines and remove abusive or fraudulent communications.[230] An intermediary may apply objective criteria to limit the securities offered through its platform as long as those criteria meet the requirements of the regulation.[231] It may also provide search functions on the website that will allow potential investors to search, sort, or categorize potential investments, as long as those search functions operate according to the objective criteria set forth in the regulation.[232] As noted above, an intermediary may not give investment advice or recommendations about investments listed on its website, solicit offers to buy the securities offered, or compensate any person for doing so.[233]

An investor in a crowdfunded transaction may cancel an investment commitment for any reason until forty-eight hours prior to the deadline identified in the issuer's offering materials.[234] An investor may also cancel an investment later than that if there is a material change to the terms of the offering or to the information provided by the issuer.[235] In such a case, the intermediary must send a notice of the material change and state that the investment commitment will be cancelled unless the investor reconfirms it.[236]

The regulation also imposes substantial compliance and recordkeeping

229. *See* 17 C.F.R. § 227.303(b).

230. *See id.* § 227.303(c) (outlining communication channels).

231. *See id.*

232. *See id.* § 227.402(b)(3) (outlining criteria).

233. *Id.* § 227.402(b)(3)(a). As noted above, there are some exceptions to this prohibition. *See supra* notes 216–21 for the rules on intermediaries advising investors.

234. 17 C.F.R. § 227.304(a).

235. *Id.* § 227.304(c)(1).

236. *Id.* §§ 227.304(a), (c)(1).

obligations on the funding platforms.[237] For example, the platforms must implement written compliance policies to ensure that the platform is in compliance with federal securities law, money laundering regulations, and privacy laws.[238] They must also make and preserve for five years a large number of records relating to their operations, including all records relating to investors, issuers, and transactions, educational materials, and notices, agreements, monthly and quarterly transaction summaries, and copies of all communications that occur on or through its platform.[239]

### *D. The Consumer Crowdfunding Experience in the United States*

#### *i. Statistics*

The SEC statistics show that, in the first year of Regulation CF's operation (from May 2016 through May 2017), 105 consumer crowdfunding campaigns were reported to the SEC as completed after having successfully met their minimum fundraising goal.[240] These successful Regulation CF campaigns raised more than thirty million dollars.[241] Non-SEC sources have since reported 292 successful campaigns, which raised $92,055,260.[242] They further added that the average number of investors per closed offering in 2016 was 331, with an average commitment of $833 per investor.[243]

#### *ii. Reactions to Regulation CF*

The reaction to the consumer crowdfunding experience in the United States since 2016 has not been positive. There appears to be a consensus

237. *See id.* § 227.403(a).

238. *See id.*

239. *Id.* §§ 227.404(a)(1)–(3), (5)–(8).

240. LINDSAY M. ABATE, OFF. OF ADVOC., SBA, ONE YEAR OF EQUITY CROWDFUNDING: INITIAL MARKET DEVELOPMENTS AND TRENDS 1–2, 9 (Mar. 29, 2018), https://cdn.advocacy.sba.gov/wp-content/uploads/2018/03/28180000/Crowdfunding_Issue_Brief_2018.pdf (analyzing SEC crowdfunding filing data in the first year of Regulation CF).

241. *Id.* at 9 (stating that the average investment raised was $289,000, the median amount raised was $170,000, the highest amount raised was $1,070,000, and the lowest amount raised was $11,800).

242. *The Current Status of Regulation Crowdfunding*, WEFUNDER, https://wefunder.com/stats (last visited May 1, 2020). Other sources report different figures. For example, commentators analyzing data from Crowdfund Capital Advisors reported 186 consumer transactions from May through December 2016. Zachary J. Robins & Timothy M. Joyce, *How to Crowdfund and Not Fall Flat on Your Face: Best Practices for Investment Crowdfunding and the Data to Prove It*, 43 MITCHELL HAMLINE L. REV. 1059, 1073 (2017).

243. Robins & Joyce, *supra* note 242, at 1076–77.

among commentators that crowdfunding transactions are inherently risky and that these risks cannot be totally eliminated.[244] They also agree that crowdfunding transactions bear a substantial and disproportionate risk of fraud and abuse.[245] The general question these scholars pose is whether a crowdfunding regulatory regime can be crafted where the benefits to issuers and investors outweigh these inherent risks.[246] More specifically, the question that these commentators are considering is whether the consumer crowdfunding regime created by the JOBS Act and Regulation CF reasonably regulates and facilitates the raising of capital by startup entrepreneurs and minimizes the risks to investors.[247] The response is that they do not. Two general criticisms elicit a negative response to this question. The first is that the statutory and regulatory provisions meant to protect investors from fraud are not very effective.[248] The second is that the costs and burdens imposed on issuers and platforms by the statute and regulation do not facilitate these transactions.[249]

*iii. The Risk of Loss and Fraud*

Proponents of consumer crowdfunding have argued that Regulation CF provides investors with adequate protection from the risks of loss and fraud in several ways. First, investor vetting and education provided by the crowdfunding platforms ensures that potential investors who buy

244. *See, e.g.*, Bradford, *supra* note 153 (asserting that although a crowdfunding exemption could be structured to provide investor protection, many crowdfunding investors would still lose money as the risks associated with crowdfunding cannot be completely eliminated); Garry A. Gabison, *Equity Crowdfunding: All Regulated but Not Equal*, 13 DEPAUL BUS. & COM. L.J. 359, 369 (2015) (discussing the unique fraud risks presented by crowdfunding); Dylan J. Hans, *Rules Are Meant to be Amended: How Regulation Crowdfunding's Final Rules Impact the Lives of Startups and Small Businesses*, 83 BROOK. L. REV. 1089, 1101 (2018); Arthur McMahon, *It Takes a Village to Fund a Startup: How an Electronic Community for Early-Stage Investments Can Bring Democracy Back to Equity Crowdfunding*, 84 U. CIN. L. REV. 1269, 1275–76 (2016).

245. *See, e.g.*, Melissa S. Baucus & Cheryl R. Mitteness, *Crowdfrauding: Avoiding Ponzi Entrepreneurs When Investing in New Ventures*, 59 BUS. HORIZONS 37, 37, 39 (2017); Bradford, *supra* note 153, at 105; Gabison, *supra* note 244, at 369; McMahon, *supra* note 244, at 1282.

246. *See* Bradford, *supra* note 153, at 115–16. *See generally* McMahon, *supra* note 244, at 1277 (asking what kind of crowdfunding regime is feasible for small issuers and whether the level of risk such a regime would present to investors was acceptable).

247. *See* Hans, *supra* note 244, at 1092.

248. *See* Sherief Morsy, *The JOBS Act and Crowdfunding: How Narrowing the Secondary Market Handicaps Fraud Plaintiffs*, 79 BROOK. L. REV. 1373, 1374, 1380–82 (2014).

249. *See* McMahon, *supra* note 244, at 1310.

crowdfunded securities understand the nature and risks of the investments that they are about to make, allowing them to make informed decisions. Second, the communication channels established by the platform for the use of potential investors and issuers unleashes the "wisdom of the crowd": investors will use this mechanism to identify fraudulent or risky transactions and educate each other about investment risks and benefits. Last, platform vetting and disclosure of issuer and transaction information will ensure that potential investors have sufficient trustworthy information to make informed investment decisions. Most scholars who have written about the Regulation CF experience seem to think otherwise.[250]

*a. Investor Vetting and Education*

Investors interested in equity crowdfunding investments have been described as unsophisticated investors from different economic classes who have very different investment motivations.[251] Unfortunately, a significant portion of the American public seems to lack the basic financial knowledge required to understand investment risks.[252] Even expert investors acknowledge that they often make poor decisions when evaluating proposed startups whose issuers provide them with far more information than is generally provided in consumer crowdfunding transactions.[253]

Unfortunately, the statute and the regulation do not really provide any guidance to platforms on how potential investors should be vetted or educated,[254] and this falls outside of the core functions and expertise of most platforms.[255] As a result, it appears that the "educational" portions of U.S. consumer crowdfunding sites are somewhat limited.[256] For example, Wefunder, one of the most active U.S. consumer crowdfunding sites,[257]

250. *But see* Robins & Joyce, *supra* note 242, at 1074 (stating that 2016 investment statistics show that "the wisdom of the crowd" rejected 58 percent of the 2016 crowdfunding offerings, and claiming that "[t]he crowd, in its infinite wisdom, is deciding who is worthy of capital").

251. Baucus & Mitteness, *supra* note 245, at 42.

252. Bradford, *supra* note 153, at 110–12 (discussing a 2005 study in which only 17 percent of adults scored an "A" on a twenty-four-question financial literacy quiz).

253. *See* Baucus & Mitteness, *supra* note 245, at 47.

254. *See* McMahon, *supra* note 244, at 1321.

255. *See* Baucus & Mitteness, *supra* note 245, at 39, 45; Bradford, *supra* note 153, at 42–43 (stating that government entities are not equipped to guard against investor fraud).

256. *See* Baucus & Mitteness, *supra* note 245, at 43.

257. Joseph Hogue, *Ultimate List of Crowdfunding and Fundraising Websites [Updated 2019]*, CROWD 101 (Sept. 3, 2018), https://www.crowd101.com/list-crowd funding-and-fundraising-websites/.

discloses risk information through a "Frequently Asked Questions" page with an e-mail address for additional questions.[258] It does not appear that a potential investor has to read this disclosure prior to investing.[259] Therefore, the likelihood that consumer crowdfunding platforms are providing investor vetting and education sufficient to make the average non-sophisticated investor understand the risks and complexities of crowdfunded investments, as these commentators conclude, is not great.

*b. "The Wisdom of the Crowd"*

The "crowd," as described by the JOBS Act and Regulation CF critics, is not very wise.[260] It is a heterogeneous group of unsophisticated investors whose investment motivations vary greatly.[261] They are bound to act emotionally and are subject to the tendency to follow the advice of someone deemed to be an expert or an authority figure. Another weakness of the crowd is that, because of its lack of sophistication, it does not generally know the right questions to ask in order to ascertain risks or uncover fraud.[262] Even if the crowd were able to act rationally, the communication channels mandated by the statute and the regulation are not as effective as they could be, as they are only open to investors registered with the platform and closed to outside individuals who might have dealt with the company and might have relevant information to share.[263] Moreover, the communication channel among investors is closed once the transaction is completed, eliminating the investor's ability to communicate post offering.[264]

*c. Due Diligence*

The statute and the regulation place substantial due diligence responsibilities, burdens, and potential liabilities on the platform, which include investor education and screening of issuers and the documentation that they post on the website.[265] Unfortunately, the regulations neither

258. *Risks*, WEFUNDER, https://help.wefunder.com/#/risks (last visited Sept. 7, 2020).

259. *See id.* (showing information about investment risks and other issues).

260. *See* Baucus & Mitteness, *supra* note 245, at 42 (explaining that the "crowd" is made up of a large amount of unsophisticated investors).

261. *Id.*

262. *Id.* at 42; *supra* notes 65–66 and accompanying text.

263. Bradford, *supra* note 153, at 134–35 (arguing that communication amongst investors should be facilitated by crowdfunding websites because, currently, communication between investors is difficult and can make it easier to miss flaws in the business model).

264. *See id.*

265. *See* McMahon, *supra* note 244, at 1318–19; *see infra* Part IV.B and

require nor empower the intermediary to have the necessary tools to do the job.[266] Moreover, due diligence is costly and time-consuming, and the platforms' compensation for the largest crowdfunding transactions, which typically average between $50,000 and $70,000, will not be sufficient to underwrite the due diligence and other costs.[267] "All of this results in a situation where the extent of due diligence by the platforms themselves will vary widely, which creates opportunities for fraudulent ventures to use them."[268] Due diligence will vary depending on the number of personnel, procedural templates used, and time spent. This discrepancy creates opportunities for fraudulent ventures to use sites which are known for light vetting.

*d. Remedies for Fraud or Misrepresentation.*

As we have seen, the JOBS Act contains a provision that subjects issuers to liability for losses resulting from material misrepresentations and omissions in connection with a crowdfunding transaction.[269] This remedy, which gives investors the right to file an action to recover their losses, may be difficult to enforce.[270] Since the amount of crowdfunding investments is capped by the statute, a scholar notes, each investor's loss will be relatively small and the costs of litigation will generally exceed any possible recovery, making an individual action for damages unfeasible.[271] Moreover, the maximum amount allowed in a crowdfunding transaction is so low that it renders the possibility of class action litigation against the issuer unlikely to succeed.[272] Because of the small amounts involved and limited government entity enforcement funding, crowdfunding fraud cases are unlikely to be a high enforcement priority.[273] Lastly, even if the investors were to successfully sue the issuer, given most startups' limited amounts of cash, it is doubtful that a defrauded investor would be able to enforce a judgment.

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accompanying text.

266. *See* McMahon, *supra* note 244, at 1321.

267. McMahon, *supra* note 244, at 1322.

268. Baucus & Mitteness, *supra* note 245, at 45.

269. *See* 17 C.F.R § 227.402 (2019).

270. Steven Bradford, *Online Arbitration as a Remedy for Crowdfunding Fraud*, 45 FLA. ST. L. REV. 1169, 1169 (2018).

271. *Id.*

272. *See id.* at 1169 (arguing for the establishment of an arbitration remedy as an appropriate remedy for the resolution of crowdfunding fraud cases).

273. *See id.* at 1182–83 (arguing that, if crowdfunding transactions become popular, the SEC would not have sufficient resources to keep up with demand for enforcement action against fraudsters).

*iv. Burdens and Costs.*

Another criticism of the U.S. consumer crowdfunding regime is that it imposes burdens and costs on issuers and intermediaries that make it prohibitively expensive and impractical.[274] For the intermediaries, these costs include SEC and Financial Industry Regulation Authority ("FINRA") registration and compliance costs, as well as the costs involved in fulfilling the issuer vetting and investor education requirements set forth in statutes and regulations,[275] costs which exceed the $50,000–$70,000 in compensation the intermediaries receive for their services.[276] For issuers, these costs include intermediary fees, preparation and compliance costs for the offering statement, costs of accounting review or audit of financial statements, and the cost of ongoing SEC reporting.[277] These costs, estimated by the SEC at between $72,800 and $168,500 for a one million dollar offering (approximately ten percent of funds sought) are substantial for a startup company and constitute a significant deterrent to issuers.[278] For this reason, the suggestion has been made that the statute be amended to increase the maximum amount of consumer crowdfunding offerings from the current $1.07 million to $5 million per twelve-month period. In May of 2017, a bill was introduced in the Senate[279] that would allow "crowdfunding vehicles"[280] to invest an unlimited amount in crowdfunded transactions. This bill had not become law at the time of publication. On March 4, 2020, however, the SEC, as part of a major restructuring of regulations dealing with exempt transactions, proposed an amendment to Regulation CF that would increase the maximum amount of consumer crowdfunding offerings to five million dollars per twelve-month period.[281] This proposal would also amend the

274. McMahon, *supra* note 244, at 1310; Hans, *supra* note 244, at 1106–07.

275. *See* Hans, *supra* note 244, at 1094–95.

276. *See id.* at 1104 (stating that in addition to the costs involved in a crowdfunding transaction, issuers are also subject to significant publicity and advertising restrictions during the offering process).

277. *See id.* at 1104–05 (discussing the costs that correspond with issuer requirements); *see also* McMahon, *supra* note 244, at 1312–16 (providing examples of the several financial burdens on issuers).

278. Hans, *supra* note 244, at 1104–05 (noting that the deterrent effect stems from the issuing costs making smaller offerings less expensive).

279. Crowdfunding Enhancement Act, S. 1031, 115th Cong. (2017).

280. *Id.* § 2(b) (defining a crowdfunding vehicle as a company whose purpose is limited to acquiring, holding, and disposing of securities issued by a single company in one or more transactions made pursuant to § 4(a)(6) of the Securities Act of 1933 and which meets a series of noted conditions).

281. 2020 Proposed Regulatory Amendments, *supra* note 180, at § 227.100 (a)(1), p. 289.

regulations under the Investment Company Act of 1940 to allow the creation of crowdfunding vehicles.[282]

The statute and the regulation further constrain investors in consumer crowdfunding in two ways. First, the regulation's split limit on individual investments in crowdfunded issues constrains the efficiency of capital formation and prevents investors from diversifying their investments in crowdfunded securities.[283] Solutions to this problem range from changing the investment cap in crowdfunded securities to maximum investments per issuer[284] to amending the statute and regulation from a "lesser of both metrics" system to a "greater of both metrics" standard, similar to that of Regulation D.[285]

Second, U.S. crowdfunding norms limit the sale of, and do not permit a secondary market for crowdfunded securities.[286] These restrictions make investments in crowdfunded securities less attractive because their lack of liquidity prevents the investor from having access to her funds by selling her security.[287] Furthermore, the investor's inability to resell crowdfunded securities prevents the investor from realizing a gain or minimizing a loss in the value of her investment.

The answer to the question of how well the JOBS Act and Regulation CF resolve, or at lease balance, the crowdfunding conundrum is mixed. Issuers might argue that Regulation CF crowdfunding is not an attractive proposition because of the limitation on the amount of funds that are crowdfunded,

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282. *Id.* § 270.31-9, p. 329.

283. *See* Hans, *supra* note 244, at 1102–03 (explaining that the regulation means that an investor who meets the accredited investor status under Regulation D, which uses the higher of both metrics to test for eligibility, would be able to purchase an unlimited amount of securities in a private placement, but no more than $107,000 in a crowdfunded issue); McMahon, *supra* note 244, at 1311–12 (providing a numeric example of a consequence created by the split limit); *see also* Robins & Joyce, *supra* note 242, at 1070 (noting that the limitation on yearly investments by a given investor is new to securities).

284. McMahon, *supra* note 244, at 1332 (providing that Regulation AGORA would set the maximum investment per issuer at $500 per year).

285. Hans, *supra* note 244, at 1110.

286. *See* Louise Lee, *The Missing Piece that Could Hold Back Equity Crowdfunding,* WALL ST. J. (May 1, 2016, 10:16 PM), https://www.wsj.com/articles/the-missing-piece-that-could-hold-back-equity-crowdfunding-1462155373 (arguing that the lack of a secondary market deters buyers); *see also supra* note 207 and accompanying text (noting that under the statute and regulations, purchasers of crowdfunded securities may not resell their investments for at least a year after purchase and there is no provision in the statute or regulations for a secondary market for crowdfunded securities); *infra* Part V (discussing crowdfunding in the Spanish legal system).

287. SEC, REPORT ON REGULATION CROWDFUNDING (2019) [hereinafter REPORT ON REGULATION CROWDFUNDING].

coupled with its high costs, substantial regulatory requirements, and potential for liability.[288] The response to this argument is simple. Because of the risky nature of startup investments and the lack of investor sophistication, the regulatory requirements imposed on the issuer are reasonable and appropriate. Cost is likely the principal issue for issuers. Raising the maximum amount that can be crowdfunded from one million to two million dollars, as is the case in Spain,[289] is a reasonable accommodation that would increase the issuer's ability to raise capital and would lower their costs. However, increasing the maximum amount to five million dollars is not a good idea, given the unsophisticated nature of offerees in consumer crowdfunding offerings.

The treatment of consumer crowdfunding intermediaries in the JOBS Act and Regulation CF is problematic. Intermediaries are not required to have minimum capital, insurance, or experience and expertise, which can result in the registration of less than adequate firms as platforms.[290] The vetting of investors, issuers, and their principals imposes substantial compliance obligations, and is essentially outsourced to intermediaries without indicating how it must be done, and what and how much vetting by the intermediary will protect the investor from liability.[291]

Given this lack of regulatory clarity and the intermediary's low profit margin on the crowdfunded issues, these firms will, as a matter of economic necessity, engage in the least (and cheapest) amount of vetting possible. This approach greatly increases the risk of fraud liability. Since intermediaries are not required to have minimum capitalization or insurance and are not likely to be large firms, it is likely that an intermediary's liability for its involvement in a fraudulent transaction will bankrupt the firm. The SEC should consider imposing minimum capitalization and insurance requirements as additional protection for investors. Moreover, regulatory clarity should be imposed by amending Regulation CF to clarify how the required vetting of investors and transactions must be undertaken. This clarification must balance the interest of sufficient protection with the cost and effectiveness of the requirements to be imposed.

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288. *See id.* at 23–26 (discussing the types of costs incurred by issuers).

289. Law of Promoting Business Financing art. 68 (B.O.E. 2015, 4607) (Spain).

290. *See* REPORT ON REGULATION CROWDFUNDING, *supra* note 287, at 27 (noting that there are 45 funding platforms registered with FINRA yet the 3 largest platforms completed the majority of offerings, and that smaller platforms may have to exit the market if they fail to attract a sufficient flow of deals).

291. *See id.* at 29 (discussing intermediaries' gatekeeper function regarding issuer compliance).

The protection of investors in Regulation CF is inadequate.[292] Its sliding investment limits (which currently permit investments of up to $107,000) and its prohibition on diversification may cause unsophisticated investors to suffer a massive loss on extremely risky investments and prevent them from minimizing their risks and losses.[293] The SEC should consider adoption of the Spanish regulatory system. It creates a set (and relatively low) investment cap for all unsophisticated investors and allows for the diversification and resale of crowdfunded investments, which offers better protection for investors. [294]

As the Article discusses above, the investment cap on consumer crowdfunded investments for accredited investors does not make sense and does not exist in the context of accredited investor crowdfunding. Accredited investors, as is the case in Spain, should be allowed to invest the same amount in both types of crowdfunding. In fact, the SEC's proposed amendments to Regulation CF offer just that.[295] As currently practiced, crowdfunding investor education is highly inadequate. As articulated above, educational materials are placed in a Frequently Asked Question section on the website, and the only action potential investors have to take in order to invest is "point and click" to affirm that they have read and understood these materials.[296] Given most consumers' experience with e-commerce, it is highly unlikely that most participants will have done so. Requiring a potential investor to interact with the educational materials or engage in a computer simulation of the potential results of her investment represents a preferable approach, because it increases the probability that a potential investor has read and understood the educational materials provided.

Lastly, the limitation of the online communication channels to registered potential investors only imposes a limit on the amount and nature of the information exchanged among potential investors and therefore creates a risk that the "wisdom of the crowd" will be adversely affected by the lack of potentially important information.[297] The SEC should consider opening a

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292. *See generally id.* (providing background information regarding the impact of Regulation CF on investor protection, including a discussion on requirements, direct feedback from intermediaries, potential investor protections, and special purpose vehicle structures).

293. *See id.* at 6–7 (noting that investment limits depend on investors' net worth).

294. *See infra* note 390 (explaining the yearly cap for U.S. investors).

295. 2020 Proposed Regulatory Amendments, *supra* note 180, at §227.100 (a)(2), p.289.

296. *See* WEFUNDER, *supra* note 258 (providing an example of an FAQ section containing educational materials).

297. *See Regulation Crowdfunding: A Small Entity Compliance Guide for Issuers*,

portion of this communication to non-registered potential investors who might have highly relevant information to share. Since the intermediary provides the infrastructure and monitors this channel, it can take steps to prevent non-registered potential investors from abusing the channel.

## V. CROWDFUNDING IN THE SPANISH LEGAL SYSTEM

### *A. The Regulation of the Securities Industry in Spanish Law*

The securities industry in Spain is primarily regulated by the Ley del Mercado de Valores ("LMV"), which was originally enacted in 1988.[298] Another statute, Real Decreto 13/10/2005, supplements the LMV's provisions regarding public and private offerings.[299] A third statute, the Ley de Sociedades de Capital, ("LSC") also has provisions that are applicable to the securities market.[300]

The LMV is meant to regulate all Spanish entities involved in the negotiation, sale, and registration of "financial instruments."[301] The term "financial instruments" is broadly and extensively defined and is meant to cover a wide range of negotiable securities.[302]

The LMV establishes the Comisión Nacional del Mercado de Valores ("CNMV") as the principal regulator of the securities industry.[303] Its members are appointed by the executive branch of the government from individuals with recognized competence and experience in matters involving the securities markets. [304]

The CNMV is also charged with advising the executive and legislative branches of the government on issues related to the securities markets.[305]

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SEC (Apr. 5, 2017), https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm (outlining the limitations of channel communication).

298. Stock Market Law (B.O.E. 2015, 255) (Spain) (noting the original adaptation of this law as Ley 24, 2988 de 28 de Julio, BOE-A-1988-18764 with a number of amendments, the last being on December 20, 3017).

299. Secondary Market for Negotiation of Stocks Law (B.O.E. 2015, 274) (Spain).

300. Capital Companies Law (B.O.E. 2010, 10544) (Spain) [hereinafter LSC] (noting the original adaptation of the Ley the Sociedades de Capital as Law 3/2009, BOE-A-2009-5614 on April 3, 2009, with multiple amendments and reorganizations after).

301. Stock Market Law art. 1.

302. *See id.* arts. 2, 7 ("The LMV provides that all negotiable securities that are publicly traded must exist only in book entry.").

303. *See id.* art. 198 (establishing the role of the CNMV).

304. *See id.* arts. 23–32 (describing appointees and the internal organization ad operations of the CNMV).

305. *See id.* art. 17 ("Its broad jurisdiction includes the supervision, regulation and inspection of securities markets and all participants therein; oversight over the

The CNMV has the power to issue interpretative regulations and technical guides explaining its interpretation of the law and regulations[306] and has extensive powers to supervise, inspect, and sanction all principal actors involved in the securities markets.[307]

The LMV also imposes an extensive number of obligations and duties for securities professionals towards their clients. These professionals have a general duty of due diligence and transparency to their clients, and are required to provide them with clear, impartial, and accurate information related to their investments.[308] They must know their customers, evaluate their investment knowledge, experience, financial condition and investment objectives, and provide them with appropriate information and warnings about their potential investments and investment strategies.[309] The LMV further prohibits market manipulation and insider trading.[310]

Issuers seeking to sell securities in a public offering must prove to the CNMV that the securities they wish to sell are suitable for sale to the public. Issuers must obtain the CNMV's approval prior to commencing sales.[311] In order to prove its suitability for entry into the market, the issuer must file certain corporate documents accrediting its compliance with all applicable legislation, as well as two or three years of audited annual financial statements.[312] It must also establish that the securities intended to be sold meet certain requirements[313] and must submit to the CNMV a document containing all information relating to the issuer, the securities, and the transaction that investors need in order to properly evaluate the proposed investment.[314] The CNMV then has ten business days to approve the document. Once it is approved, the document will be registered and the

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transparency of the markets; the protection of investors; and the promotion of the free flow of information to the markets.").

306. *See id.* art. 21 (explaining the scope of powers).

307. *See id.* arts. 233–313 (describing the CNMV powers in detail).

308. *See id.* arts. 209–10 (identifying the duties of the professionals).

309. *See id.* arts. 210, 212–13 (describing the scope of duties to the clients).

310. *See id.* arts. 225–32 (explaining the permissible actions under the LMV).

311. *See id.* arts. 33–40, 205 (identifying limited exceptions to this requirement and defining accredited investors).

312. *See* Secondary Market of Negotiation of Stocks Law arts. 11–12 (B.O.E. 2015, 274) (Spain) (disclosing an issuer's requirements for proving suitability).

313. *See id.* art. 9 ("These requirements include, *inter alia,* that the securities are validly issued, that they are sold in book entry form, and that the minimum value of the securities being sold is three million euros for equity securities and 200,000 Euros for debt securities.").

314. *See id.* arts. 16–23 (defining document structure and detailing requirements for organization and structure).

issuer may legally use it.[315] Transactions involving certain types of securities, such as those offered to employees, are exempt from the information document and above requirements,[316] and certain transactions are not considered public offerings.[317] The CNMV has broad regulatory powers to require the issuer to provide additional information, or the CNMV can prohibit or suspend an offering.[318]

As is the case in the United States, the LMV also requires domestic and foreign issuers of securities traded in Spain to file periodic reports with the CNMV.[319] Securities that have been previously issued may be sold in a secondary market, such as a security exchange, as long as several conditions are met.[320] First, the issuer must file with the CNMV copies of its constituent documents and financial statements prepared and audited in accordance with applicable legislation.[321] The issuer must also prepare and file with the CNMV an information statement relating to the securities to be sold.[322] Second, the issuer must comply with all listing requirements and conditions set forth by the secondary market in which the securities are to be traded.[323] Last, the issuer must comply with all regulations that may be issued with the CNMV, which cover the market, industry, issuer, or type of security.[324] Issuers whose securities are traded in secondary markets are required to file

315. *See id.* arts. 24–26 (contending that the issuer may legally use documents pending registration).

316. *See id.* at art. 26 (defining exemptions to document requirements).

317. *See id.* arts. 38–40 (stating that "[t]hese include, *inter alia,* offers made exclusively to accredited investors, offers made to less than 100 offerees, and offers for less than 2,500,00 Euros a year" and defining an accredited investor).

318. *See id.* art. 44 (identifying regulatory powers of the CNMV).

319. *See, e.g.*, Stock Market Law arts. 118–21 (B.O.E. 2015, 255) (Spain) (describing some limited exceptions to this requirement); *see also* Secondary Market of Negotiation of Stocks Law art. 5. I (identifying requirements for domestic and foreign issuers).

320. *See* Stock Market Law art. 43 (establishing that secondary markets are defined and listed).

321. *See id.* arts. 36(a)–(b) (listing duties of the issuer).

322. *See id.* arts. 36(c), 37(1), 37(3)–(4) ("The information statement must contain enough information to permit potential investors to make an evaluation of the issues, its business and the securities being sold. At a minimum, the statement must include, *inter alia,* a concise summary, drafted in non-technical language, of the information that investors need to determine whether to invest, a brief description of the issuer's assets, liabilities, and financial condition, as well as a description of the general conditions and terms of the offer and of the risks associated with investment.").

323. *See id.* art. 36 (describing the requirements for admission to securities negotiations in the secondary market).

324. *See id.* arts. 76(1)–(2) (listing duties of issuers).

quarterly and annual financial reports.[325]

The second important securities regulation statute in Spain is the LSC, a statute that was meant to codify and harmonize separate legislation regulating different types of business entities.[326] It applies to Sociadades Anónimas (corporations), Sociedades de Responsabilidad Limitada (limited liability companies), and Sociedades Comanditarias por Acciones (limited partnerships).[327] It also creates, as a subset of the limited liability company, an entity known as "Sociedad Nueva Empresa" (startup company), an entity with minimum capitalization and vastly simplified operating norms.[328] Under the LSC, only corporations may sell their securities in a public offering.[329] They may do so as part of their organizational process or thereafter.[330] The LSC also exempts publicly traded corporations from certain operational requirements and creates numerous other rules that apply only to these entities.[331] None of these statutes authorize the use of crowdfunding for investment purposes.[332] As was the case in the United States before the JOBS Act, none of these statutes authorize the use of crowdfunding for investment purposes.

### *B. Ley 5/2015*

In April of 2015, Spain enacted Ley 5/2015, which was intended to present a package of regulatory provisions meant to stimulate alternate financing for businesses, especially small- and medium-sized ones.[333] Title V of this law specifically created a legal framework that authorized and regulated

325. *Id.* arts. 118–19.

326. Capital Companies Law art. 1 (B.O.E. 2010, 161) (Spain).

327. *See id.* art. 1.

328. *See id.* arts. 443–54.

329. *Main Characteristics of Corporations and Limited Liability Companies*, GUIDE TO BUSINESS IN SPAIN, https://guidetobusinessinspain.com/en/anex1-legislacion-en-materia-de-sociedades/anex1-4-principales-caracteristicas-de-las-s-a-y-s-l/ (last visited May 1, 2020).

330. Capital Companies Law arts. 41–47 (explaining that a corporation wishing to make a public offering as part of its organizational process must submit a business plan, a technical report attesting to the viability of the business plan, and other documentation).

331. *See id.* arts. 495, 523 (exempting the corporation temporarily from public disclosure requirements).

332. Law of Promoting Business Financing preamble II–III (B.O.E. 2015, 101) (Spain).

333. *See id.* at preamble I (explaining that the government has launched a strategic twist of regulations to make financing more available and developing alternative means of financing).

crowdfunding.[334] This statute is Spain's attempt to resolve the crowdfunding conundrum.

Ley 5/2015 starts this framework by specifically authorizing the creation of Internet platforms ("*Plataformas de Financiación Participativa*" or "PFP's") to serve as electronic intermediaries between individuals or entities that solicit financing for a crowdfunding project ("issuers") from individuals or entities that wish to invest ("investors").[335] The statute specifically defines a crowdfunding project as one where an issuer solicits financing for an entrepreneurial project on its own behalf from investors who are seeking a monetary profit.[336] Crowdfunding projects may involve the sale, without a prospectus, of securities or a request for a loan.[337]

Unlike the JOBS Act and Regulation CF in the United States, which Ley 5/2015 resembles, Ley 5/2015 does not have a separate regulatory template or process for accredited investor crowdfunding.[338] It does, however, provide for the investment in crowdfunded transactions by accredited investors, under looser requirements and without investor limits.[339]

*i. Provisions relating to intermediaries (Platforms)*

Platforms under Ley 5/2015 receive, select, and publish proposals for crowdfunding projects; they further develop, establish, and operate communications channels that facilitate investments in these projects.[340] They are permitted, but not required, to provide additional services[341] but are

334. *See id.* art. 46.

335. *See id.* arts. 46–47 (explaining that intermediaries who serve as intermediaries in crowdfunding transactions involving donations, the sale of goods and services, and interest free loans are specifically excluded from coverage, as well as crowdfunding transactions involving Spanish residents using foreign Internet platforms).

336. *See id.* art. 49 (elucidating that the project may not involve investments or loans to third parties, the purchase of publicly traded securities or investments in firms dedicated to investment).

337. *See id.* art. 50 (explaining that unlike the LSC, Ley 5/2015 allows limited liability companies to sell their securities to the public in a crowdfunding transaction).

338. *See* McMahon, *supra* note 244, at 1316–18.

339. *See, e.g.*, Law of Promoting Business Financing arts. 67–68.

340. *Id.* art. 51.

341. *See id.* (confirming that these additional services include giving advice to issuers regarding the publication of the project on the platform, especially information technology and design; analyzing submitted crowdfunding projects, as well as engaging in risk analysis or other research relating to these projects; providing model documentation; transmitting information received about the issuers and the project; developing communication channels that permit issuers and investors to communicate directly with each other about the project; as well as representing investors with judicial or nonjudicial claims).

forbidden from engaging in practices reserved for investment firms or banking or financing entities.[342]

In order to engage in crowdfunding projects, all platforms must apply for registration with the CNMV and, once approved, will appear in a public registry.[343] Registered platforms must file periodic reports with the CNMV.[344] If a registered platform fails to conduct or interrupt its operations for more than twelve months, its registration may be suspended.[345]

Entities seeking registration as PFPs must meet certain non-financial and financial prerequisites. Unlike the JOBS Act and Regulation CF,[346] Ley 5/2015 requires that candidates show that their administrators are "honorable"[347] and possess adequate and appropriate knowledge and experience that will enable them to adequately perform their duties. The applicant must also show that it has good administrative, accounting, and internal control organization and procedures, as well as adequate mechanisms that guarantee the security, confidentiality, and reliability of its electronic systems.[348] Moreover, the applicant must have an adequate internal mechanism to deal with conflicts of interest and the appropriate conduct of all employees in dealing with proposed crowdfunding projects.[349] Financially, the statute requires that platforms have, at all times, a minimum capitalization of €60,000, as well as professional liability insurance with a minimum coverage of €300,000–€400,000.[350]

Once an application is filed with the CNMV, it must be approved or denied within three months after receipt or, if further documentation is required, no

342. *See id.* (acknowledging that these entities are subject to substantial regulation elsewhere).

343. *See id.* arts. 47, 53–54; *Platformas de Financión Participativa*, COMISIÓN NACIONAL DEL MERCADO DE VALORES, http://www.cnmv.es/platform/Consultas/Plataforma/Financiacion-Participativa-Listado.aspx (last visited May 1, 2020).

344. Law of Promoting Business Financing art. 91.

345. *Id.* art. 59.

346. *See* McMahon, *supra* note 244, at 1331–32 (recommending a new SEC program which would include biographies of officers and company holders to reveal any "bad actors").

347. *See* Law of Promoting Business Financing art. 55(e) (explaining that "honorability" is defined through an author's translation in the statute as "having shown personal, commercial and professional conduct that do not raise concerns about their capacity to engage in a prudent and honest management of the enterprise").

348. *Id.* arts. 55(f)–(g).

349. *Id.* art. 55(h).

350. *Id.* arts. 56(1)(a)–(c) (stating that the minimum capitalization requirements progressively increase once the platform has raised more than two million euros in a calendar year).

more than six months from receipt.[351] If the CNMV has not acted within this time period, the application will be deemed denied.[352] The CNMV has substantial supervisory and regulatory power over registered platforms and has the power to impose penalties on them for a number of offenses.[353]

Ley 5/2015 also imposes a code of conduct for registered platforms.[354] Under this code of conduct, platforms must conduct their operations in a neutral, diligent, and transparent fashion, and have a duty to serve the best interest of their clients.[355] As is the case in the United States,[356] websites must warn potential investors, inter alia, about the risks surrounding crowdfunded investments, including the risk of investment loss, illiquidity, and dilution.[357] They must also clearly disclose their operational procedures, fees, conflict of interest policies, antifraud policies, the identity of their auditors, and their mechanisms for investigating and resolving investor complaints.[358]

Under the conflict of interest policy, platforms must disclose all potential conflicts and protect confidential information entrusted to them. Moreover, they are barred from giving investors any personalized advice regarding any potential investments offered in the platform.[359] Platforms may not purchase more than ten percent of the amount being sought for any investment they own or by any issuer advertising in the site or of the amount being sought and must clearly disclose this investment.[360]

*ii. Provisions relating to sellers of securities*

Issuers must be registered in either Spain or another EU member state, and neither they nor any of their principals may be in bankruptcy, reorganization, or previously convicted of any crimes involving fraud, embezzlement, tax evasion, or money laundering.[361]

Crowdfunding projects may not raise funds in more than one platform and

351. *Id.* art. 53.

352. *See id.* arts. 53, 57–58 (describing the documentation required for the application).

353. *Id.* arts. 89–93.

354. *Id.* arts. 60–64.

355. *Id.*

356. *See supra* Part IV.

357. Law of Promoting Business Financing arts. 61(b)–(d).

358. *Id.* arts. 61(e)–(n); *see infra* Part IV.

359. Law of Promoting Business Financing art. 62(b); *see* Hurt, *supra* note 14, at 244.

360. Law of Promoting Business Financing art. 63(1).

361. *Id.* art. 67.

may not raise more than a total of two million euros ($2,248,000).[362] Platforms are required to ensure that each project has a financing target and a schedule for reaching it. Should the financing target not be achieved as scheduled, all invested funds must be returned.[363]

Any issuer seeking to raise capital is required to provide the platform with sufficient information, presented in non-technical language, about itself and the projects for which funding is being sought to enable a reasonable investor to make an informed decision regarding the investment.[364] Although the issuer is responsible for the completeness and accuracy of the information furnished to the platform,[365] the platform is responsible for conducting a due diligence review of both the issuer's qualifications for listing as well as the completeness and accuracy of the information provided by the issuer.[366]

Any issuer who participates in a crowdfunding transaction must amend its constituent documents to recognize shareholder's rights to participate in shareholder meetings through electronic means, grant shareholders the right to vote by proxy, and require the disclosure to all shareholders of any shareholder agreements that may affect the right to vote or transfer ownership of its securities. Any contrary provisions set forth in the issuer's constituent documents are null and void.[367] Any securities issued in a crowdfunding transaction are subject to regulation under the appropriate sections of the LMV and the LSC. [368]

*iii. Provisions relating to investors in securities*

Provisions of Ley 5/2015 that relate to investors are set forth under the heading of "Investor Protection."[369] They include provisions on investor qualification, investing limits for crowdfunding transactions, information

362. *Id.* art. 68 (stating that crowdfunding projects directed exclusively at accredited investors may raise up to five million euros).

363. *Id.* art. 69 (highlighting that there are also exceptions to this rule).

364. *Id.* arts. 70, 78–89 (stating that certain specific information about the issuer and the offer be included).

365. *Id.* art. 73.

366. *Id.* arts. 66, 71–72 (stating that the platform is also responsible for the publication of this information in its website and for ensuring that the information transmitted between the issuer and any investors through its communication channels is easily accessible to any other potential investors, and that the platform must retain any information transmitted through this channel for at least five years).

367. *Id.* art. 80.

368. *Id.* art. 77.

369. *Id.* arts. 81–88.

requirements, and other legal protections.[370]

Investors in crowdfunding transactions, as they are in the JOBS Act,[371] are first categorized as either accredited or unaccredited investors. Accredited investors are individuals with assets of over €100,000 or a yearly income of over €50,000.[372] Accredited investors must specifically request this status from the platform,[373] which must then determine that the investor has sufficient investment knowledge, skills, and experience to make informed investment decisions and understand the risks of investing in crowdfunding transactions.[374] All other investors in crowdfunding transactions are considered unaccredited investors. Accredited investors are not subject to any investment limits.[375]

Unaccredited investors may not invest more than €3,000 ($3,412) in an individual crowdfunding transaction and may not invest more than €10,000 ($11,376) a year in transactions listed on a single platform.[376] Prior to accepting an investment from an unaccredited investor, the platform must obtain a specific representation from the investor that he has been warned of the risks of investing in a crowdfunding project and that he has not invested more than €10,000 ($11,376) in other crowdfunding projects during the previous year.[377]

Unlike the JOBS Act and Regulation CF, Ley 5/2015 does not have an express prohibition against the resale of crowdfunded securities.[378] Indeed, it seems to suggest that these securities may be resold.[379] Further, unaccredited investors, certain issuers and platforms are subject to certain consumer protection norms. [380]

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370. McMahon, *supra* note 244, at 1294.

371. *Id.*

372. *Id*.

373. Law of Promoting Business Financing art. 81(1).

374. *See id.* art. 81(2)(c) (explaining that individuals who may not meet the minimum assets and income set forth in the statute may nevertheless apply for and be considered accredited investors as long as they can establish that they are represented by an appropriate investment advisory firm).

375. *See id.* art. 82 (discussing only limits to non-accredited investors).

376. *Id.* arts. 82(a)–(b).

377. *Id.* art. 82(b).

378. *See id*. art. 77 (discussing crowdfunding regulation but failing to mention anything regarding the prohibition of crowdfunded securities).

379. *See id.* (noting that the provision states that securities sold in crowdfunded offering are subject to the provisions of the CNMV and LSC; the former authorizes and regulates the sale of securities in the secondary market).

380. *Id.* arts. 85–88.

### *C. The Spanish Crowdfunding Experience*

Although a recent phenomenon, equity crowdfunding in Spain is part of a vibrant crowdfunding sector and has been the subject of academic commentary.[381] The principal issue involving the regulation of crowdfunding, an author noted, was striking a balance between overregulation of the crowdfunding sector, which would make it impossible for small firms to raise capital through this mechanism, and under-regulation, which would fail to protect investors and the market.[382] This balance is extremely hard to achieve and may involve either adapting crowdfunding to the current system of Spanish corporate and securities law or creating new legal norms to regulate the phenomenon.[383] Other scholars, in a 2016 report on crowdfunding in Spain, have noted challenges involving crowdfunding activity that included fraud, an overly restrictive statute, lack of data regarding completed crowdfunded projects, and financial sustainability issues involving crowdfunding platforms.[384] The issues resulting in fraud noted in the report included insufficient emphasis on risk mitigation and conflicts of interest, inadequate post-completion communication, lack of conflict resolution mechanisms between issuers and investors, lack of knowledge of industry best practices, and delays in the completion of commitments.[385] The report also notes that the current legislation is too restrictive to properly incentivize the development of the crowdfunding sector. [386]

Although Ley 5/2015 creates a regulatory framework similar to that of the JOBS Act and Regulation CF, there are some notable differences in its

381. UNIVERSO CROWDFUNDING ET AL., FINANCIACIÓN PARTICIPATIVA (CROWDFUNDING) EN ESPAÑA-INFORME ANUAL 2016 4–5, 13 (2016), https://www.universocrowdfunding.com/wp-content/uploads/UC_Informe-AnualCF_en-Espa%C3%B1a-2016_def.pdf (showing that that completed equity crowdfunding transactions in Spain during 2015 raised €6,018,944 ($6,989,707.28); in 2016, completed equity crowdfunding transactions raised €16,078,958 ($18,352,201.87), an increase of 167.14%; in addition to equity crowdfunding transactions, completed crowdlending transactions in Spain totaled €32,792,040; the next year, completed crowdlending transactions totaled €61,989,491 and completed real estate crowdfunding transactions totaled €61,689,491).

382. *Id.*

383. *Id.*

384. *Id.*

385. *Id.*

386. Rodriguez de las Heras, *El Crowdfunding Como Mecanismo Alternativo de Financiación de Proyectos,* 1 REVISTA DE DERECHO EMPRESARIAL 121, 136–37 (2014) (on file with author).

approach.[387] First, Ley 5/2015 imposes a number of requirements on a platform and its operations that are not present in its U.S. counterpart.[388] These include character experience and knowledge requirements for the operator and adequate systems of internal controls, electronic systems, security, and reliability, as well as conflict of interest and employee conduct. Furthermore, unlike the situation in the United States, platforms are subject to minimum capitalization and liability insurance requirements.[389] Moreover, issuers in consumer crowdfunding projects in Spain are able to raise twice as much capital as their counterparts in the United States.[390] In the Spanish system, intermediaries are responsible for the completeness and accuracy of the disclosure set forth in the platform.[391] As a result, the Spanish investor is able to diversify her crowdfunded investment and, consequently, is better able to minimize her potential loss then her U.S. counterpart.

Similarly, Ley 5/2015 specifically requires issuers to ensure that investors in crowdfunded transactions have the right to participate in shareholder meetings through electronic means and grant them the right to vote by proxy.[392]

Spanish investors in crowdfunding issues have a much lower investment cap than their U.S. counterparts, but the cap expressly increases for investments in more than one crowdfunded issue.[393] Notably, Ley 5/2015

387. Law of Promoting Business Financing preamble & art. 55 (B.O.E. 2015, 4607) (Spain).

388. *Id*. art. 55.

389. *Id*. art. 56.

390. *See id.* arts. 56, 68 (allowing issuers to raise €2,000,000 ($2,264,000) per project, while the JOBS Act places the limit at $1,000,000 adjusted for inflation (currently $1,115,634.55). *Compare* 15 U.S.C. § 77d(a)(6)(A) (2018) (allowing issuers to raise a maximum of one million dollars adjusted for inflation during a twelve-month period), *with* Law of Promoting Business Financing art. 68 (allowing issuers to raise a maximum of two million euros during a twelve-month period).

391. Law of Promoting Business Financing art. 86.

392. *Id*. art. 80.

393. *See id.* art. 56 (discussing the financial requirements in the statute — U.S. investors under Regulation CF have a yearly cap for all issues of the greater of $2,200 or five percent of annual income for investors with either an annual income or net worth of less than $107,000, or ten percent of the lesser of the investor's annual income or net worth if the investor's annual income and net worth exceed $107,000 — and stating that the purpose of this cap is, presumably, to limit an unaccredited investor's risk of loss in a crowdfunding investment; for the drafters of the JOBS Act, the higher the investor's income, the more capacity she has to absorb risk; Ley 5/2015 works differently: it sets a €3,000 ($3,396) yearly cap for a single investment; but allows investors to invest up to €10,000 ($11,328) in multiple crowdfunded investments).

does not prohibit the resale of securities sold in crowdfunding transactions, allowing investors an exit opportunity not available to consumer crowdfunding investors in the United States.[394] As a result, the Spanish investor potentially faces less liability than her U.S. counterpart. As in the United States, accredited investors have no investment cap in crowdfunded offerings.

The income and net worth requirements for accredited investors are similar.[395] Ley 5/2015, unlike its U.S. counterpart, allows individuals who may not meet the minimum assets and income requirements to be considered an accredited investor if they are represented by an appropriate investment advisory firm.[396] Finally, and most importantly, Ley 5/2015 does not prohibit the resale of securities sold in crowdfunded transactions.[397]

Ley 5/2015, whose regulatory template resembles that of the JOBS Act, has nevertheless done a better job at balancing the interests in the crowdfunding conundrum than its U.S. counterpart. By doubling the amount that issuers may raise while maintaining disclosure requirements similar to those in the JOBS Act, Ley 5/2015 allows issuers more fundraising flexibility and lower costs, while protecting investors by requiring the disclosure of all material information related to the investment.

Intermediaries are much more regulated by Ley 5/2015 than by Regulation CF.[398] Ley 5/2015 imposes a series of experience, knowledge, capitalization, insurance, infrastructure, and conduct requirements that ensure that intermediaries can perform their functions well. One issue is of particular note here: the provision that specifies that intermediaries are only responsible for a review of the issuers' qualifications for listing and the accuracy and completeness of the information posted on the site provides regulatory clarity as to the nature of their vetting obligations.[399]

Ley 5/2015 allows both accredited investors and consumers to make investments in crowdfunded issues.[400] For consumers, the set investment caps and the ability to split that cap among more than one issuer limits their

394. *See supra* note 207 and accompanying text.

395. *Compare* 17 C.F.R. § 230.501(a) (2019) (describing the introduction of the Crowdfunding Enhancement Act, which permits an unlimited amount of investment in crowdfunding transactions), *with* Law of Promoting Business Financing art. 81(1). (providing that investors in crowdfunding will be lucky to obtain profit from a return).

396. Law of Promoting Business Financing art. 81(2)(d)(3).

397. *Id.* art. 77.

398. *See id.* arts. 61(e)–(h) (outlining several types of requirements that serve to regulate source platforms and other intermediaries).

399. *See supra* Part IV.B.ii.–C.ii.

400. Law of Promoting Business Financing art. 81.

risk of loss and allows for diversification. For all investors, the ability to resell a crowdfunded investment allows them to realize their gains or minimize their losses within a reasonable time. Notably, the Ley 5/2015 investors' bill of rights forces issuers to provide mechanisms that give the purchasers of crowdfunded shares the opportunity to be treated the same as other shareholders of the same class. The inclusion of similar provisions in Regulation CF is also worthy of consideration.

## VI. ENTER THE EUROPEAN UNION: THE PROPOSED EU CROWDFUNDING REGULATION

In March of 2018, the European Commission proposed a Regulation on European crowdfunding service providers to the European Council and Parliament.[401] Its purpose is to facilitate the expansion of crowdfunding services throughout the European market by supplementing the varying crowdfunding legislative frameworks currently in existence.[402] The Commission views crowdfunding as an important source of non-bank financing, especially for small and medium enterprises, that can further a system of more sustainable financial integration and private investments and promote job creation and economic growth.[403] The proposed Regulation seeks to create a stand-alone voluntary European crowdfunding regime, which would leave current systems unchanged and allow crowdfunding platforms to choose to provide their services under national law or engage in cross-border crowdfunding using European norms.[404]

### *A. Provisions relating to Intermediaries (Platforms)*

Intermediaries must have an establishment in an EU member state and be registered with and authorized to operate by the European Securities and

401. *See generally Proposal for a Regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business*, COM (2018) 113 final (Mar. 8, 2018) [hereinafter *EU Proposed Reg.*], https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018PC0113 (stating that the proposal adopts measures to support the facilitation of crowdfunding practices).

402. *See id.* at 2 (noting that the current crowdfunding regulatory regimes throughout Europe range from no regulation to strict application of investor protection rules); *see also Commission Staff Working Document: Crowdfunding in the EU Capital Markets Union,* at Annex 2, SWD (2016) 154 final (May 3, 2016), https://ec.europa.eu/info/system/files/crowdfunding-report-03052016_en.pdf (describing the current crowdfunding legislative frameworks throughout the EU).

403. *EU Proposed Reg.*, *supra* note 401, at 12–13.

404. *See id.* at 5–8 (detailing the crowdfunding benefits to investors and small businesses).

Markets Authority ("ESMA").[405] Once authorized, an intermediary is listed in a register maintained by ESMA and is subject to its jurisdiction and regulation.[406] ESMA has substantial powers to regulate platforms, including the power to request information, inspect, investigate, fine, and impose penalties.[407]

Intermediaries are expected to act honestly, fairly, professionally, and in the best interest of their clients. Unlike the case of the United States and Spain, they are allowed to open discretionary accounts that allow employees of the platform to make investment decisions on behalf of their client, but they must disclose the exact method and parameters of that discretion. Intermediaries are also required to take all necessary steps to obtain the best possible results for their clients[408] and are expected to establish and oversee adequate policies and procedures to ensure their effective and prudent management,[409] as well as procedures for the prompt, fair, and consistent handling of customer complaints.[410] They may outsource some of their activities to third parties but remain responsible for compliance with outsourced activities.[411] They must also provide their clients with information regarding their asset-safekeeping and payment services.[412]

Intermediaries are subject to specific conflicts of interest provisions.[413]

405. *See id.* art. 10 (providing that the application process requires a platform to provide substantial information regarding its structure, operations, governance arrangements, systems, outsourcing arrangements, and internal control mechanisms and that management staff must be identified and substantial information regarding their background, knowledge, skills, experience and absence of criminal record and financial improprieties must be submitted).

406. *Id.* arts. 11–12; *see id.* art. 13 (stating that ESMA also has the power to withdraw a panel's authorization for a number of reasons).

407. *Id.* arts. 22–30, 32–34; *see id.* arts. 13(2), 20, 30, 35, 37 (summarizing that the proposed Regulation envisions substantial cooperation in the regulation of crowdfunding between ESMA and national regulatory agencies).

408. *See id.* art. 4(2)–(4) (providing that intermediaries are not allowed to pay or accept any remuneration or benefit for routing investors' orders to a particular crowdfunding offer in their or a third party's platform).

409. *Id.* art. 5.

410. *Id.* art. 6(2).

411. *See id.* art. 8(2) (requiring that outsourcing of any operational functions may not materially impair the platform's internal controls or impair ESMA's ability to monitor the platform's compliance with its obligations).

412. *Id.* art. 9.

413. *See id.* art. 7 (stating that the provisions include, for example, that platforms must maintain and operate effective internal rules to prevent conflicts of interest, platforms may not have any financial participation in any crowdfunding offer on their platform and may not accept as clients any of its employees, shareholders, or controlling persons; that all conflicts of interest, as well as the steps taken to mitigate any risks arising therefrom,

They are also responsible for providing prospective investors with a key investment information sheet and keeping it updated.[414] The platform is also required to insert a risk warning in all key investment information sheets.[415] Further, the intermediaries must keep all agreements and records related to their services for five years and provide clients with immediate access to these records at all times.[416]

### *B. Provisions relating to Sellers of Securities*

Unlike the JOBS Act and Ley 5/2015, the proposed Regulation has virtually no provisions directly related to issuers seeking to list their securities for sale with an intermediary.[417] The only such provision appears to be Article 16, which provides that the key investment information sheet about proposed crowdfunding transactions must be drawn up by the issuer and must contain the specific information set forth in the Annex to the proposed Regulation.[418] Issuers are also required to complement or amend the key investment information sheet in order to correct any material omissions, mistakes, or inaccuracies identified by the platform.[419] The lack of provisions that seek to hold issuers liable for fraud or misrepresentation is striking.[420]

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must be disclosed clients and potential clients); *see also id.* art. 19 (requiring that service platforms must also ensure that all marketing communications to investors are clearly identifiable as such, and that these communications only indicate where and in which language clients can obtain information about individual projects or offers).

414. *See id.* art. 16 (providing that the key investment information sheet is prepared by the issuer); *see also infra* notes 311–12 and accompanying text (mandating that investors submit documentation to authorize securities transactions similar to a prospectus).

415. *Id.* at art. 16(2)(c).

416. *Id.* at art. 18.

417. *Compare EU Proposed Reg*, *supra* note 401, art. 1 (limiting the scope of the regulation to crowdfunding intermediaries and not transactions), *with* Eugenia Macchiavello, *Peer-to-Peer Lending and the "Democratization" of Credit Markets: Another Financial Innovation Puzzling Regulators*, 21 COLUM. J. EUR. L. 521, 556 (2015) (explaining U.S. regulations fit peer-to-peer lending within the already-existing framework for securities regulation), *and* Alejandro Gonzalez, *New Securitization Framework in Spain*, 9 J. INT'L BANKING & FIN. L. 601 (2015) (indicating Spain's new lending regulation incorporates crowdfunding into its regulatory framework for securitized lending).

418. *EU Proposed Reg*, *supra* note 401, art. 16.

419. *See id.* art. 16(6).

420. *See id.*

### *C. Provisions relating to Investors*

The proposed Regulation requires that all information that intermediaries provide to clients or potential clients about themselves and any proposed services or investments, including the nature of risks associated therewith, is clear, comprehensible, complete, and correct. This information must be provided before any potential client enters into a crowdfunding transaction.[421]

Although the provisions of the proposed Regulation are similar to those of the U.S. and Spanish legislation, they include several noteworthy provisions. First, before giving prospective investors access to crowdfunded offers, the platform is required to assess whether and which crowdfunding services offered are appropriate for the investors.[422] This assessment involves consideration of the prospective investor's general knowledge of risk in investing and particular knowledge of risk in crowdfunding based on the investor's knowledge and experience.[423] How this assessment is to be undertaken is unclear from the proposed Regulation. If the platform determines that the prospective investor has insufficient knowledge and experience of the risks involved in crowdfunding transactions, it must inform her that their services may be inappropriate and give a warning of the risks involved. How such a warning is to be given to the prospective investor is unclear, and a potential investor may still invest in the site after receiving this warning. This requirement goes beyond those set forth in the U.S. and Spanish legislation.[424] Another innovative provision requires platforms to offer the prospective investors and investors the ability to use a simulation in order to determine their ability to bear loss as a result of their proposed investments.[425]

The proposed Regulation has three unique provisions of interest. The first, which allows platforms to exercise discretion in investing on behalf of its clients,[426] does not exist in either the U.S. or Spanish systems and is highly problematic. Given the nature of crowdfunding, this authority may be subject to abuse and increase the investment risk to unsophisticated investors, especially given the lack of provisions establishing liability for

421. *Id.* art. 14.

422. *Id*. art. 15(1).

423. *See id.* (providing that crowdfunding platforms are required to make this assessment for each investor every two years).

424. *Id.* art. 15(4).

425. *Id.* art. 15(5).

426. *See id.* art 4(4) (providing that crowdfunding service providers may "exercise discretion on behalf of their clients with respect to the parameters of the clients' orders").

issues or intermediaries in the proposed Regulation. The requirement that the platform investigate the suitability of potential investors, which goes beyond the requirement of both the JOBS Act and Ley 5/2015,[427] is also likely to be controversial. It requires the platform to go beyond the investor's representation about investor knowledge and understanding of risk and requires an assessment of the investor's suitability for investing in crowdfunded transactions. Although this proposition sounds desirable from a consumer protection perspective, it is problematic. The proposed regulation does not state how this assessment is to be done, and what criteria — objective or subjective — it must be based on. This assessment is likely to be expensive and time-consuming, and platforms will not, in all likelihood, be able to recoup their expense in complying with this requirement. Moreover, since the proposed Regulation does not forbid unsuitable investors from investing in crowdfunded transactions, its value as a consumer protection measure is limited.[428] The simulation requirement,[429] however, is not only innovative, but worthy of being considered by both the United States and Spain. A computer-generated graph simulation would probably more vividly illustrate the risk of investing in crowdfunded securities than a series of general disclosures about the risk of investing in crowdfunded transactions. Given current computer technology, this simulation should be relatively simple and inexpensive to create and implement.

The proposed Regulation is meant to supplement, not supplant, national crowdfunding legislation.[430] For those EU member states with no crowdfunding legislation, the Regulation may serve as a way to introduce crowdfunding to their legal systems. Many of its provisions are similar to those of the JOBS Act, Regulation CF, and Ley 5/2015.[431] Others, worsen, rather than vet, the accuracy and completeness of the information posted online. Intermediaries are allowed to open discretionary accounts and are allowed to outsource most, if not all, of their operational functions. As noted above, the potential for a platform to engage in acts of fraud, negligence, and

427. *Compare supra* notes 190–92, 216 and accompanying text (describing and analyzing the JOBS Act's consumer crowdfunding investor suitability requirements), *with supra* notes 317–19 and accompanying text (describing and analyzing Ley 5/2015's consumer crowdfunding investor suitability requirements).

428. *See supra* Part IV.B.ii.c. (discussing investor motivation).

429. *See EU Proposed Reg*, *supra* note 401, art. 15(5).

430. *See EU Proposed Reg*, *supra* note 401, at 2, 8.

431. *See id.* at 2–3. *See generally* Macchiavello, *supra* note 417 (describing the current regulatory environment around crowdfunding, including the JOBS Act and Ley 5/2015).

abuse is very high under these circumstances.

Although intermediaries are required to assess the suitability of potential investors to a much greater degree than the United States or Spain (and it is unclear from the proposed Regulation what information this vetting encompasses), a finding that the potential investor is unsuitable for a crowdfunding investment does not prevent that individual from investing. In this case, what is the purpose of investor vetting if its results have no effect? However, the proposed Regulation's requirement that investor education include computer-generated simulations is innovative and worthy of consideration.

Unlike its Spanish and U.S. counterparts, the proposed Regulation has very few provisions directly related to issuers.[432] Notably, although issuers are responsible for the completeness and accuracy of the information about them posted on the intermediary's site, there is no provision making issuers liable for fraud or misrepresentations.

Lastly, it is striking that the proposed Regulation does not contain any of the investor protection provisions set forth in its United States and Spanish counterparts.[433] This defect must be remedied before the Regulation is finalized.

## VII. CONCLUSION

As we have seen, raising capital through crowdfunding transactions is by its nature a risky endeavor and presents a series of issues that affect startup companies seeking financing, as well as potential investors and the state, acting regulator of the investment markets. These issues are difficult to resolve because government regulators are faced with two contradictory missions: facilitating the acquisition of capital by businesses and protecting investors and the market from fraud and manipulation. Given the nature of crowdfunding and its actors, fulfilling both missions is extremely challenging.

On one hand, in order to facilitate the acquisition of capital by startup businesses through crowdfunding, regulators must make the process simple, quick, and inexpensive. This would involve simple forms, limited disclosures, and low fees. Protecting investors and the market from fraud

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432. *See EU Proposed Reg*, *supra* note 401, at 8–10 (discussing who the proposed regulation's provisions apply to and how it addresses money laundering and fraud concerns).

433. *See id.*; *see also* John S. Wroldsen, *The Crowdfund Act's Strange Bedfellows: Democracy and Start-Up Company Investing*, 62 U. KAN. L. REV. 357, 362 (2013); Gonzalez, *supra* note 417.

and manipulation, on the other hand, may be achieved by educating investors, requiring full disclosure of all material facts regarding the company and the offering, establishing time constraints on sales to allow both potential investors and the market time to absorb and evaluate the disclosed information and appropriately price the offering, or limiting investments for small investors. Unfortunately, utilizing these investor protection mechanisms adds time, cost, and complexity to the capital acquisition process.

The easier a regulator makes it for a startup company to raise capital by deregulating the process, the less protection investors have against fraud and manipulation. Conversely, the more protection investors have against fraud and manipulation, the higher the cost and difficulty of raising capital. These two interests need to be balanced, so that companies face a capital acquisition process that provides them with reasonable access to capital, and investors have an appropriate level of protection against fraud and manipulation. This is the crowdfunding conundrum.

### *A. Solving the Crowdfunding Conundrum?*

The crowdfunding conundrum has no solution. The major issue is whether and how well the JOBS Act and Regulation CF, Ley 5/2015, and the EU Proposed Regulation have balanced the risks and problems that occur in crowdfunding transactions.

The answer to this question with regard to the JOBS Act and Regulation CF is mixed. Issuers complain that the costs, regulatory burdens, and potential liability make crowdfunding an unattractive proposition. Other than the cost issue, these complaints are unfounded. The treatment of intermediaries is, however, problematic. They are not required to have minimum capital, insurance, experience, and expertise, which can result in the registration of less than adequate firms on platforms. The vetting of investors, issuers, and their principals imposes substantial compliance obligations, and it is essentially outsourced to intermediaries without indicating how this must be done and what amount of vetting by the intermediary will protect it from liability. The protection of investors is also inadequate, because of Regulation CF's sliding investment caps and its prohibitions against diversification and resale of crowdfunded investments. Lastly, the limitations on the communications channel that I discussed above are also an issue.

As I have noted, Congress and the SEC should consider the following changes to the Act and Regulation CF:

- Increase the maximum amount that can be raised in consumer

crowdfunding transactions from one million to two million dollars;

 Add minimum capitalization and insurance requirements to crowdfunding intermediaries;

 Clarify how the required vetting of investors and transactions will be undertaken while balancing the interests to be protected with the costs and effectiveness of the requirements to be adopted;

 Replace the sliding investment cap with a set and relatively low investment cap for unsophisticated crowdfunding investors and allow for the diversification of investments within this cap;

 Reconfigure investor educational materials so that they require investor interaction and consider the use of computer graphics and simulations in these materials;

 Consider opening a portion of the communications channel administered by the intermediaries to non-registered potential investors who might have relevant information concerning the company or the issue;

 Consider adopting a shareholder's bill of rights similar to that of Ley 5/2015.

* * *

# INTERPRETING GOBBLEDYGOOK UNDER 35 U.S.C. § 101: DOES THE 2019 PATENT ELIGIBILITY GUIDANCE CLARIFY PAST CONFUSION?

NICOLE BRUNER*

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## I. INTRODUCTION

When determining a patent's eligibility, the judiciary creates the same effect as spinning the Wheel of Fortune[1] in leaving behind an impenetrable, and at best, cloudy means to the end, thus creating a sense of unpredictability and eliminating hope for anything resembling consistency. The U.S. Patent and Trademark Office's ("PTO") 2019 Patent Eligibility Guidance ("2019 PEG")[2] does not fully resolve the befuddled remains of federal courts' vigilant attempts to apply 35 U.S.C. § 101[3] in patent-eligibility decisions.[4] Conflicting guidance for eligibility leaves ambiguity in identifying subject matter that constitutes an "improvement to the functioning of a computer or to any other technology or technological field," and disincentivizes innovation due to unpredictable standards.[5]

This Comment discusses how considerations in federal court decisions demonstrate discrepancies in the application of tests for patent eligibility.

1. *Wheel of Fortune* (Sony Pictures Studios television broadcast).

2. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019) (setting forth a new standard for patent eligibility).

3. 35 U.S.C. § 101 (2018).

4. *See, e.g.*, Cleveland Clinic Found. v. True Health Diagnostics LLC, 760 F. App'x 1013, 1020 (Fed. Cir. 2019) (highlighting the need for more consistent standards for eligibility).

5. MPEP (9th ed. Rev. 24, Jan. 2018) § 2106.05(a).

This Comment highlights the need for a consistent standard for patent eligibility.[6] Patent eligibility involves determining whether a claim is directed toward a judicial exception (i.e., law of nature, natural phenomena, or abstract idea) and whether the claim directed toward a judicial exception fails to amount to significantly more than the judicial exception.[7] This Comment focuses primarily on abstract ideas in discussing judicial exceptions and patent eligibility.

Part II references eligibility standards under case law and the 2019 PEG. Part III analyzes possible interpretations of improvements to technology under conflicting standards and the implications of such tension. Part IV argues that Congress must define a new standard for eligibility and improvements to technology.[8]

## II. THE STAIRWAY TO ELIGIBILITY UNDER 35 U.S.C. § 101

35 U.S.C. § 101 acts as a gatekeeper for patents.[9] Following the legislature's definition of patent-eligible subject matter, the federal courts contrived phrases such as "judicial exceptions" and "abstract ideas," and have significantly narrowed the realm of eligible subject matter in incremental revelations.[10] In *Kewanee Oil Co. v. Bicron Corp.*,[11] the U.S. Supreme Court discussed the inventions that claim processes and highlighted that processes, in general, are appropriate subjects for consideration under 35 U.S.C. § 101.[12] In particular, the *Kewanee* court noted that claims of a

6. *See Cleveland Clinic Found.*, 760 F. App'x at 1020 (opining there is a need for a more consistent standard in determining eligibility).

7. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 50.

8. *See* Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130 (1948) (highlighting the dangers of monopolizing technology by granting patents to seekers who merely describe technological objectives).

9. 35 U.S.C. § 101 (2018); *see also* Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 217 (2014) (applying the "new and useful" portion of 35 U.S.C. § 101 to determine patent eligibility); *Landmark Patent Decisions in the US that Shaped Patent Laws*, GREYB, https://www.greyb.com/landmark-patent-decisions-us/ (last visited Apr. 6, 2020) (discussing the difficulty in overcoming eligibility rejections).

10. *See* David O. Taylor, *Confusing Patent Eligibility*, 84 TENN. L. REV. 157, 243 (2016) (opining that the restrictions on eligibility will dissuade investors); *see also* H. Jared Doster, *The English Origins of the Judicial Exceptions to 35 U.S.C. § 101*, AM. BAR ASS'N, https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2018-19/march-april/english-origins-judicial-exceptions-35-usc-section-101/ (last visited June 14, 2020) (contending that judicial exceptions are concepts taken by the U.S. Supreme Court from English common law).

11. 416 U.S. 470 (1974).

12. *Id.* at 474–75 (suggesting that processes qualified as patentable subject matter under 35 U.S.C. § 101).

statutory category sufficed for purposes of eligibility.[13] However, this understanding of the *Kewanee* court is a far cry from other U.S. Supreme Court decisions, which restricted statutory subject matter within statutory classes.[14] *Funk Bros. Seed Co. v. Kalo Inoculant Co.*[15] notably narrowed products that could be deemed eligible subject matter.[16] Further, inventions directed toward judicial exceptions do not constitute patent-eligible subject matter under current federal court standards.[17] That is, an invention, such as a method for sending messages, does not constitute patent-eligible subject matter in and of itself.[18] Such methods merely applied to the internet setting would not suffice for overcoming an abstract idea.[19] Determinations of whether an invention is directed toward a judicial exception derive from the inclusion of "useful" in 35 U.S.C. § 101, the ambiguity of which has led to years of dispute and discrepancy.[20]

*a. Federal Courts' Undefined Analysis of Abstract Ideas*

Since the phrase "abstract idea" is undefined, the federal courts use precedent for determining whether inventions are directed toward abstract ideas.[21] The federal courts currently follow a test set forth under *Alice Corp.*

13. *Id.* at 476–78 (discussing requirements for patentability, including claims of statutory classes).

14. *See* Gottschalk v. Benson, 409 U.S. 63, 67–68 (1972) (restricting the realm of eligible process patents under reasoning from the *Funk Bros.* Court); Parker v. Flook, 437 U.S. 584, 594–95 (1978) (contending that claiming a specific purpose does not necessarily save an ineligible process claim).

15. 333 U.S. 127 (1948).

16. *See id.* at 132 (deciding that advantages of mixed inoculants were not sufficient to accord with eligibility standards).

17. *See, e.g.*, Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 216 (2014) (warning against monopolization of judicial exceptions by restricting the realm of eligible subject matter).

18. *See, e.g.*, Windy City Innovations, LLC v. Facebook, Inc., 411 F. Supp. 3d 886, 898 (N.D. Cal. 2019) (finding that the claim is directed to the abstract idea of sending and displaying a message).

19. *See* A Pty Ltd. v. eBay, Inc., 149 F. Supp. 3d 739, 746 (W.D. Tex. 2016) (determining that a patent for verifying email addresses was directed toward the abstract idea of verifying destinations).

20. *See generally* William Gvoth, *2019 Has So Far Shown a Continued State of Flux for 35 U.S.C. § 101*, SQUIRE PATTON BOGGS: GLOB. IP & TECH. L. BLOG (July 11, 2019), https://www.iptechblog.com/2019/07/2019-has-so-far-shown-a-continued-state-of-flux-for-section-35-u-s-c-%C2%A7101/ (describing a draft bill to reform 35 U.S.C. § 101 that redefines "useful" and alters the process for judicial subject matter eligibility determinations).

21. *See* Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1334 (Fed. Cir. 2016) (stating the Federal Circuit must compare challenged patents to precedent since the U.S.

*v. CLS Bank International*[22] and *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*[23] ("*Alice/Mayo* test") to determine whether inventions are patent-eligible.[24] The test begins with a determination as to whether the claims recite a statutory category ("Step 1") (i.e., machine, method, system, or composition of matter).[25] If the claims recite a statutory category, courts then determine whether the claims are directed toward a judicial exception ("Step 2A").[26] If the claims are directed toward a judicial exception, courts determine whether the claims offer significantly more than the judicial exception, thus reciting an inventive concept ("Step 2B").[27] An inventive concept may be found from the unconventional arrangement or activities of elements (i.e., structural components such as computers or sensors).[28]

*i. The Birth of Business Method Patents*

*Gottschalk v. Benson*[29] further defines patent eligibility from the standard set forth by Congress under 35 U.S.C. § 101, contending that a process qualifies for consideration if it: (1) is implemented by a particular machine in a non-conventional and non-trivial manner; or (2) transforms an article from one state to another.[30] In *Gottschalk*, the Court invalidated a patent for programming a generic computer to convert signals from binary-coded decimal form into pure binary form.[31] The *Gottschalk* court did not discuss the merits of business method inventions; however, the Court's finding that the computerized method amounted to ineligible subject matter narrowed the

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Supreme Court has yet to define an abstract idea).

22. 573 U.S. 208 (2014).

23. 566 U.S. 66 (2012).

24. *See, e.g.*, Netflix, Inc. v. Rovi Corp., 114 F. Supp. 3d 927, 951 (N.D. Cal. 2015) (applying the *Alice/Mayo* test and finding that the claim limitations failed to disclose an inventive concept), *aff'd*, 670 F. App'x 704 (Fed. Cir. 2016).

25. *See Alice Corp.*, 573 U.S. at 216 (stating the statutory categories of "process, machine, manufacture, or composition of matter" and contending that a claim must first fall in a statutory category to be considered for patentability).

26. *See id.* (instructing courts to determine whether a claim to a statutory class is directed to a patent-ineligible concept).

27. *See* Thales Visionix, Inc. v. United States, 850 F.3d 1343, 1348–49 (Fed. Cir. 2017) (finding that the unconventional arrangement of sensors amounted to significantly more than the abstract idea of determining positions).

28. *Id.* at 1348.

29. 409 U.S. 63 (1972), *rev'g*, 441 F.2d 682 (1971).

30. *See id*. at 69–70 (finding that a practice is not ineligible if there exists a particular machine or a transformation).

31. *Id*. at 71–72.

chances of eligibility for business method patents.[32] Here, the *Gottschalk* court decided that the challenged claims were directed toward an algorithm applied to a computer, and thus, were not limited to any type of machinery or a transformation of substance, and if patented, would preempt the use of the mathematical formula.[33]

*State Street Bank & Trust Co. v. Signature Financial Group, Inc.*[34] is the first milestone case regarding the patentability of business method patents.[35] Prior to *State Street Bank*, the PTO rejected business method patents as claiming abstract ideas.[36] The *State Street Bank* court allowed business method patent inventions to be treated the same as any other patent invention in finding that the eligibility test should be directed toward a "useful, concrete, and tangible result" test rather than a "business versus technology" test.[37] As such, the patent challenged in *State Street Bank* amounted to eligible subject matter, regardless of its categorization under business methods.[38] In 2010, *Bilksi v. Kappos*[39] rendered the "machine-or-transformation" test set forth in *Gottschalk* inadequate as the primary test for patentability, thereby restricting the realm of eligibility.[40]

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32. *See* Kristian Sullivan, *A Work in Progress: The Ever [or Never] Changing Role of the Machine-or-Transformation Test in Determinations of Patentable Subject Matter Under 35 U.S.C. § 101*, 12 HOUS. BUS. & TAX L.J. 362, 384 (2012) (contending that business method patents must reflect the machine-or-transformation test along with other U.S. Supreme Court considerations to qualify for potential patent eligibility).

33. *Gottschalk*, 409 U.S. at 71–72 (finding that use of a computer was not necessitated, and the invention's patent would amount to a patent on the formula itself).

34. 149 F.3d 1368 (Fed. Cir. 1998), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008).

35. *Id.* at 1373, 1375 (opening the realm of eligibility to business method patents).

36. *See id.* at 1375, 1377 (drawing upon the "useful" language of patent law to determine that business method patents are not non-statutory); *see also* AT&T Corp. v. Excel Commc'ns, Inc., 172 F.3d 1352, 1361 (Fed. Cir. 1999) (affirming the finding that business method patents are not in and of themselves non-statutory), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008).

37. Ebby Abraham, Bilski v. Kappos: *Sideline Analysis from the First Inning of Play*, 26 BERKELEY TECH. L.J. 15, 33 (2011) (contending that the *State Street Bank* court rejected the business method exception to patentability in finding that business method inventions may be patentable).

38. *State St. Bank*, 149 F.3d at 1377 (finding that the patent for managing mutual fund investment structure amounted to eligible subject matter).

39. 561 U.S. 593 (2010) (determining that a particular machine or transformation is not in and of itself an eligibility test).

40. *Id.* at 603–04; *see also* Abraham, *supra* note 37, at 41–42 (contending that the *Bilski* court denounced the business method exception for patentability).

*ii. The Alice/Mayo Effect on Business Method Patents*

In 2014, examiners reopened several business method patents and determined that inventions should be rendered ineligible in light of *Alice*.[41] The *Alice* court primarily relied on the decision in *Mayo* to restrict eligible subject matter to the furthest point in the history of business method patents.[42]

The *Alice/Mayo* test was adopted by federal courts and implemented in the PTO. [43] Examiners relied on the Manual of Patent Examining Procedure ("MPEP") and case law for determinations of eligibility under the *Alice/Mayo* test, whereas courts are bound by federal precedent.[44] In determining what the pending claim is "directed to" under the second step of the *Alice/Mayo* test, Step 2A, examiners and courts often found that claims could be simplified to abstract ideas such as "determining," "comparing," "generating," etc.[45] Less subject matter than ever before is eligible under *Alice*, and therefore, patent seekers and holders in business methods negatively received the test.[46]

41. *See* Jasper L. Tran, *Two Years After* Alice v. CLS Bank, 98 J. PAT. & TRADEMARK OFF. SOC'Y 354, 358 (2016) (disclosing an invalidation rate of approximately sixty-six percent as of June 2016 following the *Alice* court's decision).

42. *See* Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 87–88 (2012) (outlining considerations in eligibility that further restricted the realm of eligible subject matter).

43. Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 217–18, 221 (2014) (outlining the *Alice/Mayo* test); *Mayo Collaborative Servs.*, 566 U.S. at 73 (finding that mere application of a system or method on generic computing components is not sufficient to overcome the abstraction); *see also* MPEP (9th ed. Rev. 24, Jan. 2018) § 2106.05(a).

44. *See* Cleveland Clinic Found. v. True Health Diagnostics LLC, 760 F. App'x 1013, 1020 (Fed. Cir. 2019) (declining to follow PTO guidelines in light of U.S. Supreme Court precedent).

45. *See* Christian Dorman, *"One If by Land, Two If by Sea": The Federal Circuit's Oversimplification of Computer-Implemented Mathematical Algorithms*, 2018 U. ILL. J.L. TECH. & POL'Y 285, 292–93 (2018) (finding that the simplification of claims to abstract gerunds regardless of computer components leads to higher rates of invalidation); Rebecca Lindhorst, Note, *Two-Stepping Through* Alice's *Wasteland of Patent-Eligible Subject Matter: Why the Supreme Court Should Replace the* Mayo/Alice *Test*, 69 CASE W. RES. L. REV. 731, 762 (2019) ("The test fails to provide objective guidelines and leaves the patent-eligibility determination to the subjective opinion of a judge or patent examiner.").

46. *See* Hallie Wimberly, Comment, *The Changing Landscape of Patent Subject Matter Eligibility and Its Impact on Biotechnological Innovation*, 54 HOUSTON L. REV. 995, 1008 (2017) (referencing the restrictions on patent eligibility).

*iii. "New" Take on Identifying Abstract Ideas*

Prior to the implementation of the 2019 PEG, the courts and the PTO rejected and invalidated patents in tandem.[47] However, the PTO's implementation of the 2019 PEG divorced the PTO from federal courts and their adherence to the *Alice/Mayo* test.[48]

The 2019 PEG is based on the *Alice/Mayo* test to determine patent eligibility, but it altered the step for determining whether a claim of an invention is directed toward a judicial exception.[49] In particular, the 2019 PEG now advises two parts to Step 2A.[50] That is, instead of determining whether the claims are "directed to" an abstract idea as in the *Alice/Mayo* test, examiners under the 2019 PEG now determine whether the claim recites an abstract idea under the first part of Step 2A of the eligibility test ("Step2A Prong 1").[51] Examiners then determine whether the claim integrates the abstract idea into a practical application under the second part of Step 2A of the eligibility test ("Step 2A Prong 2").[52]

The 2019 PEG offers a series of considerations for determining whether an invention is eligible and highlights a practical application of an abstract idea in rendering inventions patent-eligible.[53] The analysis of the practical application represents a more streamlined and consistent determination of

47. *See* Chad J. Hammerlind, *Patent Eligibility Used as the Federal Circuit's Shuttlecock in Weekly Badminton Match*, 31 No. 6 INTELL. PROP. & TECH. L.J. 8, 8 (explaining that examiners are rendering more cases eligible under the 2019 PEG but that this change is separating the PTO from federal courts).

48. *See* Russell Slifer, *The Federal Circuit Just 'Swallowed All of Patent Law' in* ChargePoint v. SemaConnect, IP WATCHDOG (Apr. 2, 2019), https://www.ipwatchdog.com/2019/04/02/federal-circuit-just-swallowed-patent-law-chargepoint-v-semaconnect/id=107917/ (contending that a patent may be issued under the 2019 PEG but will be out of line with the courts); *see, e.g.*, J. Jonas Anderson, *Applying Patent-Eligible Subject Matter Restrictions,* 17 VAND. J. ENT. & TECH. L. 267, 279–86 (2015) (highlighting alternative tests based on a host of other concerns).

49. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019) (relying on the *Alice/Mayo* rationale).

50. *Id.* at 53–54.

51. *See id.* at 54 (advising that the purpose of the new guidance is to streamline the eligibility analysis and finding that the "directed to" consideration under *Alice/Mayo* is inefficient and subjective).

52. *See id.* (defining that a practical application exists where there is, *inter alia*, improvement to other technology or technological field, improvement to computer functionality, and a meaningful limitation); *see also* Trading Techs. Int'l, Inc. v. IBG LLC, 921 F.3d 1084, 1095 (Fed. Cir. 2019) (finding an improvement to interface technology).

53. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 54–55 (instructing examiners to follow a series of steps in determining eligibility).

eligibility under the 2019 PEG.[54]

*b. Improvements to Technology Under the Standards in Play*

Although the federal courts have yet to address the merits of the 2019 PEG, the U.S. District Court for the District of Delaware did suggest that the 2019 PEG can deliver different outcomes than the *Alice/Mayo* test.[55] The PTO set forth examples to accompany the 2019 PEG to clarify subject matter eligibility and the District Court of Delaware acknowledged a discrepancy between one example under the 2019 PEG and federal court standards.[56] Example 40 of the 2019 PEG discloses adaptive monitoring of network traffic data and is a practical application of the judicial exception because the claims present an improvement to network monitoring.[57] Therefore, Example 40 constitutes patent-eligible subject matter.[58] Conversely, the district court in *Citrix Systems, Inc. v. Avi Networks, Inc.*[59] found similar claims to be ineligible under the *Alice/Mayo* test for failing to recite significantly more than a complex abstraction using conventional computing components.[60] In acknowledging the similarity of the challenged claims to those of Example 40, the district court did not attempt to rectify the different outcomes, but rather concluded that the courts were bound by the *Alice/Mayo* test over the 2019 PEG.[61] Successful prosecution at the PTO may be short-

54. *See id.* (instructing examiners to replace the "directed to" determination of the *Alice/Mayo* test and the comparison of claims to case law with two prongs for determining whether the claim recites abstract ideas, and if so, whether the claim integrates the abstract idea into a practical application).

55. *See* Citrix Sys., Inc. v. Avi Networks, Inc., 363 F. Supp. 3d 511, 525 n.2 (D. Del. 2019) (acknowledging that the claims invalidated by the present court are similar to Example 40 of the 2019 PEG representing patent-eligible subject matter).

56. *See id.* (noting the divide between the PTO examples and the decision of the District Court of Delaware). *See generally* U.S. PATENT & TRADEMARK OFFICE, SUBJECT MATTER ELIGIBILITY EXAMPLES: ABSTRACT IDEAS (2019) (disclosing eligible and ineligible examples, numbered 37–42, of patent claims).

57. *See* U.S. PATENT & TRADEMARK OFFICE, *supra* note 56, at 10–11 (determining under the 2019 PEG that the claim recited the statutory category of a process under Step 1, recited the judicial exception of a mental process under Step 2A Prong 1, and integrated the judicial exception into a practical application under Step 2A Prong 2).

58. *Id.*

59. *Citrix Sys., Inc.*, 363 F. Supp. 3d at 511.

60. *Id.* at 522 (finding the claims were directed toward an abstract idea and merely recited conventional computer activity under the *Alice/Mayo* test).

61. *See id.* at 521, 525 n.2 (suggesting that the two standards for eligibility deliver different outcomes in acknowledging the similarities between Example 40 and the challenged claims).

lived as the federal courts give no deference to PTO eligibility standards.[62]

*i. Improvement to Technology Under Federal Case Law*

Courts apply the "improvement" portion of the test by asking whether a technological solution to a technological problem exists.[63] When determining whether an improvement exists, the U.S. Court of Appeals for the Federal Circuit analyzes whether the invention itself aims to improve computer functionality or an existing technological field.[64] That is, claims may be patent-eligible in part due to the purported disclosure denoting benefits over prior art inventions.[65] However, *Ultramercial v. Hulu*[66] highlights the importance of claim language, thus reminding the patent community that any supposed benefits must further be embodied in the claims.[67]

*Alice* establishes that merely employing a computer to effect some process or improvement is insufficient to render an invention patent-eligible.[68] The invention must satisfy the "harnessing" principle and effect a concrete application of the abstract idea.[69] In distinguishing determined

62. *See* Cleveland Clinic Found. v. True Health Diagnostics LLC, 760 F. App'x 1013, 1020 (Fed. Cir. 2019) (invalidating claims for being ineligible and declining to follow PTO guidelines in labeling similar subject matter eligible).

63. Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1339 (Fed. Cir. 2016).

64. *See* IBM Corp. v. Groupon, Inc., 289 F. Supp. 3d 596, 605–06 (D. Del. 2017) (distinguishing challenged claims from those of *Two-Way Media v. Comcast Cable Communications*, 874 F.3d 1329, 1337–38 (Fed. Cir. 2017), in finding that the challenged claims described the specific architecture behind the claimed computer improvement).

65. *See, e.g.*, *Two-Way Media*, 874 F.3d at 1338 (determining that the claims were invalid for missing the inventive concept of technological innovations recited in the specification).

66. 772 F.3d 709 (Fed. Cir. 2014).

67. *See id.* at 715 ("We must examine the limitations of the claims to determine whether the claims contain an 'inventive concept' to 'transform' the claimed abstract idea into patent-eligible subject matter."); *see also* Voip-Pal.Com, Inc. v. Apple, Inc., 375 F. Supp. 3d 1110, 1145 (N.D. Cal. 2019) (finding arguments to improvement irrelevant since the "purported improvements have not been captured in the claim").

68. *See generally* Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208 (2014) (finding that while "all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas," the claims must still pose significantly more than a monopolization of such concepts); *In re* TLI Commc'ns LLC Patent Litig., 823 F.3d 607 (Fed. Cir. 2016) (suggesting that disclosure of generic technologies in a nascent environment is insufficient to specify an improvement to technology).

69. *See* McRO, Inc. v. Bandai Namco Games Am., Inc., 837 F.3d 1299, 1299, 1314 (Fed. Cir. 2016) (explaining that the abstract idea was harnessed in the animation field in a particular manner to claim an unknown benefit to the field).

improvements that harness abstract principles from concepts that invoke the use of a computer to achieve a result, case law advises that eligible inventions may specify ways in which a computer assists in the improvement of the technology.[70]

*Diamond v. Diehr*[71] is a milestone case for demonstrating when a computerized method offers an improvement to an existing technology.[72] The invention in this case improved a technological field because it overcame a common technological problem in rubber molding processes.[73] Similarly, the invention in *Enfish, LLC v. Microsoft Corp.*[74] is an improvement to computer functionality in claiming a specific data structure for storing and retrieving data and offers relevant considerations in discerning improvements to technology, such as identifying the focus of the claim as a whole.[75] In particular, federal courts suggest that improvements to a technological tool pose improvements to technology.[76]

In *Finjan Inc. v. Blue Coast Systems, Inc.*,[77] Blue Coast Systems challenged the eligibility of Finjan's patent for virus scanning and detection of previously unknown viruses. The *Finjan* court held that the challenged claims posed an improvement to technology because previous virus-scanning practices only recognized previously-identified viruses.[78] In particular, the invention in *Finjan* offered a technological solution to a

70. *See* DDR Holdings, LLC. v. Hotels.com, L.P., 773 F.3d 1245, 1259 (Fed. Cir. 2014) (noting that the improved and particular method of data collection constituted an improvement to technology); *see also* Affinity Labs of Tex., LLC v. DirecTV, LLC, 838 F.3d 1253, 1256–57 (Fed. Cir. 2016) (finding that an advance in the process for downloading content for streaming purposes constitutes an improvement to technology).

71. 450 U.S. 175 (1981) (finding a new combination of steps to be patentable as an improvement in rubber molding technology even though all constituents of the combination were well known and in common use before the combination was made).

72. *See id.* at 188–89 (highlighting that the existence of conventional components does not bar eligibility).

73. *Id.* at 192–93 (contending that implementing mathematical formulas in a structure in which the patent laws purport to protect the claim may constitute eligibility).

74. 822 F.3d 1327 (Fed. Cir. 2016).

75. *See id.* at 1335 (concluding that the unconventional database drove the improvement to computer functionality).

76. *See* A Pty Ltd. v. eBay, Inc., 149 F. Supp. 3d 739, 746 (W.D. Tex. 2016) (distinguishing between solving a problem in technology and implementing commercial practices in technology).

77. 879 F.3d 1299 (Fed. Cir. 2018).

78. *Id.* at 1304; *see* Memorandum from Robert W. Bahr, Deputy Comm'r for Patent Examination Policy, to Patent Examining Corps 1 (Apr. 2, 2018) [hereinafter PTO *Finjan* Memorandum] (establishing recent decisions indicating improvements to computer functionality and improvements to technology under *Alice/Mayo*).

problem that was not previously seen in the technological field.[79] Similarly, the Federal Circuit in *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc.*[80] found that claims of a graphical user interface for mobile devices displaying a summary window of each application while in an unlaunched state posed improvements to interfaces for devices.[81] Instead of using conventional components to display a generic index, the claims are directed toward a specific manner of displaying a limited set of information on a mobile device.[82]

*ii. Improvement to Technology Under the 2019 PEG*

When determining if a practical application exists in the invention, the 2019 PEG instructs examiners to determine whether "an additional element reflects an improvement in the functioning of a computer, or an improvement to other technology or technological field . . . ."[83] The "improvement to other technology or technological field" portion of the 2019 PEG sits among other considerations for determining whether there is a practical application and cites the MPEP and federal case law as support for asserted improvements.[84] There is still a question as to how an improvement to technology or technological field is recognized and defined.[85] Federal precedent provides examples against which examiners and attorneys may compare pending claims in determining whether improvements to technology or computer-functionality exist, but this practice leaves ample room for subjectivity in predicting eligibility.[86]

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79. *See Finjan, Inc.*, 879 F.3d at 1304 (finding that the invention amounted to significantly more than conventional approaches to virus scanning).

80. 880 F.3d 1356 (Fed. Cir. 2018).

81. *Id.* at 1363 (concluding benefits to user interfaces over the prior art).

82. *Id.*

83. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 55 (Jan. 7, 2019).

84. *See id.*; DDR Holdings, LLC. v. Hotels.com, L.P., 773 F.3d 1245, 1265–66 (Fed. Cir. 2014) (finding that the display of the webpage design technology was an improvement to webpage designs); *Core Wireless Licensing S.A.R.L.*, 880 F.3d at 1363 (applying the *Alice/Mayo* test to determine that a graphical user interface posed technological improvements to conventional interfaces); *Finjan, Inc.*, 879 F.3d at 1304 (finding that there did exist an improvement in analyzing a downloadable code).

85. *See* MPEP (9th ed. Rev. 24, Jan. 2018) § 2106.05(a) (establishing considerations for determining improvements to technology while failing to disclose an explicit standard for such determinations).

86. *Compare* McRO, Inc. v. Bandai Namco Games Am., Inc., 837 F.3d 1299, 1315–16 (Fed. Cir. 2016) (determining that automatic lip synchronization and facial expression animation using computer-implemented rules were an improvement to computer animation), *and DDR Holdings*, 773 F.3d at 1259 (finding that an improved, particular

*iii. Inconsistencies within Federal Courts*

*TNS Media Research, LLC v. Tivo Research & Analytics, Inc.*,[87] exemplifies the discrepancy in determining whether there exists an improvement to an existing technology.[88] The invention in this dispute involved a method for measuring the effectiveness of advertising in a fragmented digital environment.[89] A U.S. District Court for the Southern District of New York granted summary judgment on the issue of patent eligibility and determined that the patents were directed to ineligible subject matter under the *Alice/Mayo* test.[90] The court determined that the claims did not necessitate a tangible machine for collecting data and the claims lacked an inventive concept.[91] Further, the alleged benefits disclosed in the specification were not claimed, and thus, unclaimed disclosures could not render claims patent-eligible.[92]

*TNS Media Research* was reassigned to another district court in the Southern District of New York that used the same *Alice/Mayo* test to vacate the summary judgment.[93] The vacating court found that the claims in question did in fact require a computer and that the invention reflected in the claims purported improvements in data granulation.[94] The court analyzed the claims under Step 1 of the *Alice/Mayo* test and highlighted that the U.S. Supreme Court has not established a definitive rule for determining what subject matter constitutes an abstract idea.[95] The court further determined

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method of digital data compression may constitute an improvement to technology), *with* Alice Corp. Party Ltd. v. CLS Bank Int'l, 573 U.S. 208, 221 (2014) (deducing that a novel and non-obvious mental concept applied to a generic computer does not amount to an improvement in technology).

87. 223 F. Supp. 3d 168 (S.D.N.Y. 2016).

88. TNS Media Research, LLC v. Tivo Research & Analytics, Inc., 166 F. Supp. 3d 432 (S.D.N.Y. 2016), *vacated*, 223 F. Supp. 3d 168 (S.D.N.Y. 2016); *see* TNS Media Research, LLC v. Tivo Research & Analytics, Inc., 629 F. App'x 916, 942 (Fed. Cir. 2015) (remanding the case back to the district court where eligibility matters were discussed).

89. *TNS Media Research*, 223 F. Supp. 3d at 181.

90. *See TNS Media Research*, 166 F. Supp. 3d at 449–50 (concluding that the claims did not pose significantly more than the abstract idea).

91. *Id.* (finding that the claims could be performed by a human without a computer and did not purport to improve technology under the *Alice/Mayo* test).

92. *Id.*

93. *TNS Media Research*, 223 F. Supp. 3d at 171 (vacating the decision in 166 F. Supp. 3d 432).

94. *Id.* at 176–77, 182 (discussing the need for a computer and the granular character of the steps that allowed for improvements in data collection).

95. *Id.* at 178 (deciding that the Federal Circuit instead compares instant claims to those previously analyzed by the Federal Circuit in precedent cases).

that the vacated decision relied upon an overgeneralization of the claims to reduce the invention to nothing more than abstract concepts and failed to consider the components integrating the abstract concepts.[96] Namely, the reduction of the claims by the previous court to collecting, viewing, and purchasing of data could describe a plurality of eligible and ineligible inventions alike.[97] The dispute in *TNS Media Research* represented the vulnerability that inventions of methods purporting to improve technology face in eligibility standards.[98] The court decided that the claims are eligible as having solved a technological problem but failed to resolve the ambiguity among courts in coming to this conclusion.[99]

Similarly, district courts in the Northern District of California disagree on inventions that constitute an improvement to technology. The court in *Immersion Corp. v. Fitbit, Inc.*,[100] in upholding a patent for haptic feedback in wearable devices, disagreed with the decision in *Fitbit, Inc. v. AliphCom*.[101] In particular, this disagreement highlighted considerations of how an unconventional arrangement of technological tools may affect determinations of improvements to technology and whether inventions of methods are less likely to pose improvements to technology than inventions of other statutory classes.[102] *Thales Visionix Inc. v. United States*[103] touches the matter and exemplifies how an unconventional arrangement of sensors can pose improvements to the positioning of objects on a moving platform.[104] Here, a method claim was deemed an improvement to technology since the unconventional nature of the technology rendered an improvement to the

96. *See id.* at 181–82 (contending that an invention must harness such principles in a meaningful composition).

97. *See id.* at 182 (highlighting that "virtually any invention can be reduced to a concept," but the question is whether the invention offers significantly more than just an abstract concept).

98. *See id.* (expressing that method claims are especially vulnerable to overgeneralization).

99. *See id.* (asserting the invention passes step two of the *Alice/Mayo* test by resolving various technological problems but leaving open the improvement in technology question).

100. 313 F. Supp. 3d 1005 (N.D. Cal. 2018).

101. *See* Fitbit, Inc. v. AliphCom, No. 16-cv-00118-BLF, 2017 WL 819235, at *10 (N.D. Cal. Mar. 2, 2017) (finding that the method for activity monitoring failed to pose an improvement to a technological tool in the field of data monitoring).

102. *See Immersion Corp.*, 313 F. Supp. 3d at 1025–26 (citing Thales Visionix, Inc. v. United States, 850 F.3d 1343, 1348 (Fed. Cir. 2017)).

103. 850 F.3d 1343 (Fed. Cir. 2017).

104. *Id.* at 1348.

technological field.[105]

Considerations of effects of unconventional arrangement of technological tools are further explored in *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*[106] and *Mortgage Grader v. First Choice Loan Services Inc.*[107] In *Bascom*, the Federal Circuit upheld a patent for internet filtering using generic computer tools.[108] Conversely, the Federal Circuit in *Mortgage Grader* invalidated a patent for evaluating loans using generic computer tools.[109]

*c. Sympathy for the Applicant*

In *Cleveland Clinic Foundation v. True Health Diagnostics*,[110] the Federal Circuit declined to follow the 2019 PEG, stating that it is not bound by the instructions set forth therein.[111] The *Cleveland* court also highlighted a need for consistent application of case law.[112] As such, patent eligibility is unpredictable because there are two different standards that are being applied.[113] Applicants are expected to file patent applications under PTO regulations, and thus, must prosecute patents under the 2019 PEG for the purpose of eligibility.[114] However, if the PTO grants a patent for the application and a litigant challenges the application in federal court, the court will refer to the prosecution history in part to determine validity.[115] As the federal courts make eligibility determinations under *Alice/Mayo*, applicants

105. *Id.* at 1343.

106. 827 F.3d 1341 (Fed. Cir. 2016).

107. 811 F.3d 1314 (Fed. Cir. 2016).

108. *Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1350 (conveying that the specific method of filtering internet content was not conventional).

109. *Mortg. Grader, Inc.*, 811 F.3d at 1322 (determining that the claims merely added a computer to conventional steps).

110. 760 F. App'x 1013 (Fed. Cir. 2019).

111. *Id.* at 1019–20.

112. *Id.*

113. *See generally* Alexander T. Katsulis et al., *USPTO Clarifies Alice/Mayo Step 2A With New Patent Subject-Matter Eligibility Guidance*, K&L GATES (Jan. 10, 2019), http://www.klgates.com/uspto-clarifies-alicemayo-step-2a-with-new-patent-subject-matter-eligibility-guidance-01-10-2019/?nomobile=perm (stating that courts do not follow the standard set forth by the PTO).

114. *See* James J. DeCarlo & George David Zalepa, *The USPTO's New Section 101 Guidance: Progress or Pitfall?*, N.J.L.J. (May 10, 2019, 10:30 AM), https://www.law.com/njlawjournal/2019/05/10/the-usptos-new-§101-guidance-progress-or-pitfall/?slreturn=20190726013851 (instructing applicants to prosecute under the 2019 PEG while being mindful of potential arguments under *Alice/Mayo*).

115. *E.g.*, *Cleveland Clinic Found.*, 760 F. App'x at 1019 (rejecting arguments under the 2019 PEG at the federal district court).

are likely to be at a disadvantage because they will need to have supplemented the prosecution record with arguments under *Alice/Mayo*.[116] Applicants may further find eligibility successes at the PTO short-lived as the federal courts still apply a stricter standard.[117]

If applicants are unable to file under predictable standards, the patent system may see a decrease in filings as applicants search for other means of protection.[118] Patents and trade secrets have historically overlapped in statutory subject matter, and businesses may seek more predictability in an area of intellectual property.[119]

## III. CONFLICTING ELIGIBILITY PRECEDENT HAS MANGLED APPLICATIONS OF STANDARDS AMONG THE COURTS AND PTO

Prior to the PTO's implementation of the 2019 PEG, the federal courts and the PTO uniformly rejected patents as ineligible under the same mangled realm of patent law.[120] While the 2019 PEG draws upon the same precedent as used previously, its separation of considerations has generated a gap between federal court decisions and PTO practices.[121] This gap leads to conflicting opinions in identifying improvements to technology and creates uncertainty for the patent community.

### *a. Redefining Standards for Improvements to Technology*

An improvement to technology should be defined as an unconventional change to a technological tool that actuates a particular technological solution to a particular technological problem, wherein precise instructions for achieving the improvement are embodied in the claims.[122] The foregoing

116. *See* DeCarlo & Zalepa, *supra* note 114 (suggesting that applicants must prepare for various arguments).

117. *See id.* (finding discrepancies between *Alice/Mayo* and the 2019 PEG).

118. *See* Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 471 (1974) ("The risk of eventual patent invalidity by the courts and the costs associated with that risk may well impel some with a good-faith doubt as to patentability not to take the trouble to seek to obtain and defend patent protection for their discoveries, regardless of the existence of trade secret protection.").

119. *See id.* (opining there is overlap across categories of intellectual property protection and that trade secret protection may produce more efficient rewards).

120. *See* Hammerlind, *supra* note 47 (discussing the growing split between the PTO and federal courts due to the implementation of the 2019 PEG).

121. *See* Slifer, *supra* note 48 (arguing that the Federal Circuit overruled the 2019 PEG).

122. *See* Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016) (highlighting the unconventional change as bolstering the determination of an improved database); *see also* Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 217 (2014)

elements for this proposed standard are as follows: (1) technological art; (2) unconventional change to a technological tool; and (3) a technological solution with precise limitations for resolving a technological problem.

*i. Technological Art*

In compiling the plethora of case law regarding improvements to technology, the underlying consideration is the identification of a technological art.[123] *In re Benson* defined technological arts in finding that computers, regardless of their use, are within the realm of technological arts.[124] Although the decision for patentability in *In re Benson* was reversed by *Gottschalk*, the standard for defining technological arts was not referenced.[125] However, federal courts have referenced computing components when discussing improvements to technology or computer functionality.[126] As such, the standard for technological arts is arguably a calculating component (i.e., a generic computing component such as a processor or memory) or a combination of calculating components in communication.[127] That is, a technological tool present in the claims satisfies a first step toward finding an improvement to technology.[128] However, the existence of a technological art is insufficient to render the claims an improvement if the technological tool is merely performing a conventional

(distinguishing between changes in technology and novel abstractions); *In re* TLI Commc'ns LLC Patent Litig., 823 F.3d 607, 612 (Fed. Cir. 2016) (finding that generic technology in the nascent environment is not sufficient for specifying a particular solution).

123. *See* Bridge & Post, Inc. v. Verizon Commc'ns, Inc., 778 F. App'x 882, 889 (Fed. Cir. 2019) (highlighting improvements to technology as, *inter alia*, inventing HTTP header fields, user identifiers, or encryption techniques).

124. *In re* Benson, 441 F.2d 682, 688 (1971) ("It seems beyond question that the machines — the computers — are in the technological field, are a part of one of our best-known technologies, and are in the 'useful arts' rather than the 'liberal arts,' as are all other types of 'business machines,' regardless of the uses to which their users may put them."); Diamond v. Diehr, 450 U.S. 173, 200–01 (1981) (citing *In re* Benson, 441 F.2d 682 (1971)) (stating that the invention must do more than merely use a technological art).

125. *See Diamond*, 450 U.S. at 201 (contending that the standard set forth in *In re Benson* has not been overturned).

126. *See Enfish, LLC*, 822 F.3d at 1335 (highlighting improvements to technological arts, such as an LED display and chip architecture, and contending that the unconventional database was an improvement to a technology that led to the improvement of computer functionality).

127. *See* Intellectual Ventures I LLC v. Erie Indem. Co., 850 F.3d 1315, 1328 (Fed. Cir. 2017) (suggesting that the database is the technological art to be improved).

128. *See* Fitbit, Inc. v. AliphCom, No. 16-CV-00118-BLF, 2017 WL 819235, at *10 (N.D. Cal. Mar. 2, 2017) (arguing that improvements must be made to a technological tool).

activity.[129]

*ii. Unconventional Change to a Technological Tool*

*Alice* distinguished between merely applying concepts to the computing field and activating a change to the computing field or to a technology itself.[130] That is, the *Alice* court found that the mere existence of computing devices in the invention was insufficient to render the claims an improvement because the computing devices were paired with novel and non-obvious abstract concepts.[131] Conversely, the Federal Circuit in *Enfish* found an improvement to technology in claims directed toward a self-referential database.[132] In that case, the court distinguished the challenged claims from those deemed ineligible in *Alice* by finding that the challenged claims are directed toward a database that functions differently than other database structures and that the change generated benefits to the technology.[133]

Federal courts, while not explicitly conflating the "conventional" analysis with the "improvement" analysis, deduce improvements in part from determinations of unconventional activity.[134] Essentially, federal courts have generally found that claims to an invention do not amount to an improvement to a technology or technological field when the claims merely employ generic computer implementation in a conventional or known

129. *See* TS Patents LLC v. Yahoo!, Inc., 279 F. Supp. 3d 968, 986 (N.D. Cal. 2017) (rejecting the instant claims as improvements to technology because the claims failed to specify improvements to "folder" or "data object" storage itself), *aff'd*, 731 F. App'x 978 (Fed. Cir. 2018).

130. *See In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016) (finding that a hardware component failed to transform the instant claims to patent-eligible subject matter because asserted improvements were not to a technology but rather were applied to a technological field).

131. Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 304–05 (2014) (distinguishing between an improved concept merely applied to technology and an improvement to technology itself); *see also* Synopsys, Inc. v. Mentor Graphics Corp., 839 F.3d 1138, 1151 (Fed. Cir. 2016) ("[A] claim for a *new* abstract idea is still an abstract idea.").

132. Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1337, 1339 (Fed. Cir. 2016) (finding that the claims set forth precise instructions for achieving a change from conventional databases that led to increased flexibility, faster search times, and smaller memory requirements).

133. *Id.* at 1338 (contrasting the generic computer components of *Alice*).

134. *Id.* at 1337 ("[O]ur conclusion . . . [of] an improvement . . . is bolstered . . . [and] achieves other benefits over conventional databases . . . ."); OIP Techs., Inc. v. Amazon.com, Inc., 788 F.3d 1359, 1364 (Fed. Cir. 2015) (contending that conventional computer activities do not constitute an improvement).

manner.[135] *Mortgage Grader* exemplifies the considerations of conventional versus unconventional elements in finding that merely reciting generic computers performing known functions does not make an otherwise ineligible invention patent-eligible.[136] Rather, the claims must effect an improvement to the functioning of a computer itself or an improvement to any other technology or technological field in order to be patent-eligible.[137] There must be an unconventional change within a technological tool to effect an improvement over what is currently known in industry.[138] *Bascom* further considers this notion in finding that a solution requiring "generic" components may still be patent-eligible when operating in a non-conventional manner to achieve and improve an advancement over the prior art.[139]

The Federal Circuit in *Mortgage Grader* and *Bascom* arrived at different conclusions of eligibility with respect to the challenged claims of each case.[140] There is a substantial difference between the "generic elements" of *Bascom* and those of *Mortgage Grader*.[141] The "unconventional"

135. *See* TNS Media Research LLC v. Tivo Research & Analytics, Inc., 223 F. Supp. 3d 168, 179 (S.D.N.Y. 2016) (finding that conventional activity may constitute failure to effect an improvement), *vacating* 166 F. Supp. 3d 432 (S.D.N.Y. 2016); *see, e.g.*, Versata Dev. Grp., Inc. v. SAP Am., Inc., 793 F.3d 1306, 1334 (Fed. Cir. 2015) (finding no unconventional software in achieving the alleged solution); Intellectual Ventures I LLC v. Capital One Bank (USA), 792 F.3d 1363, 1371 (Fed. Cir. 2015) (explaining that a departure from conventional sequences may be indicative of improvements).

136. Mortg. Grader, Inc. v. First Choice Loan Servs., Inc., 811 F.3d 1314, 1325 (Fed. Cir. 2016) (citing *Alice*, 573 U.S. at 225–26).

137. *Id.* (finding that the claims were directed to the business idea of anonymous loan shopping and did not purport to improve a computer or technology).

138. *Compare* CardioNet, LLC v. Scottcare Corp., 388 F. Supp. 3d 442, 459 (E.D. Pa. 2019) (determining that the claims employ conventional technology, and thus, did not amount to an improvement), *with Enfish, LLC*, 822 F.3d at 1330 (finding an unconventional change to a self-referential table leading to improvements in the database).

139. Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1343, 1350 (Fed. Cir. 2016) (setting forth the standard that the mere existence of generic computer components does not bar patentability); *see* Citrix Sys., Inc. v. Avi Networks, Inc., 363 F. Supp. 3d 511, 516, 522 (D. Del. 2019) (searching for an unconventional arrangement of technological elements).

140. *Compare Mortg. Grader, Inc.*, 811 F.3d at 1325 (Fed. Cir. 2016) (concluding that the claims are directed to an abstract idea and fail to provide an inventive concept), *with Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1352 (concluding that the claims are directed to an abstract idea but do provide an inventive concept in the ordered combination of claim limitations).

141. *Compare Mortg. Grader, Inc.*, 811 F.3d at 1324–25 (finding that the claims merely add an interface, a network, and a database and do not purport to improve any technology), *with Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1350–51 (finding that

arrangement of elements differentiates an ineligible claim employing generic computer components from an eligible claim employing generic computer components.[142]

*iii. Technological Solution to a Technological Problem*

After identifying whether an unconventional change to a technological art exists, the next step is to determine whether there is a technological problem to be improved.[143] In particular, *A Pty Ltd. v. eBay*[144] establishes that addressing a long-standing problem in a computer setting is not sufficient in itself to constitute a problem to be improved.[145] For business method purposes, merely addressing a long-standing business practice in a conventional technolgical environment may equate to merely applying a mental concept to a known computing field.[146] Such practices do not constitute actuating a change to a technological tool to purport technological benefits.

If technological problems necessitating improvements exist, then there must be a particular solution in determining improvements to technology or another technological field.[147] Such solutions could emulate those seen in *Enfish* or *DDR Holdings*, where the improvements to technology led to

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the ordered combination of limitations presented an improvement to filtering content).

142. *See Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1350 (highlighting the test for whether there exists an unconventional arrangement of elements for Step 2B of the *Alice/Mayo* test).

143. *See* TNS Media Research LLC v. Tivo Research & Analytics, Inc., 223 F. Supp. 3d 168, 174 (S.D.N.Y. 2016) (finding that the invention was an improvement to the granulation of data and was indeed patent-eligible over the current state of the technology for the data gathering); *Citrix Sys., Inc.*, 363 F. Supp. 3d at 522 (searching for a problem specifically arising in a technological field).

144. 149 F. Supp. 3d 739 (W.D. Tex. 2016).

145. *See id.* at 746 (highlighting that there must exist specificity in identifying a technological problem and solution such that the claims must not merely purport to claim a technological objective); *see also id.* at 743 (finding that asserted improvements must be specific in the claim language); Ultramercial, Inc. v. Hulu, LLC, 772 F.3d 709, 715 (Fed. Cir. 2014) (concluding that the instant claims failed to improve the advertising technology).

146. *See* Alice Corp. Pty. v. CLS Bank Int'l, 573 U.S. 208, 221–22 (2014) (concluding that applying the abstract idea of intermediated settlement using a generic computer is insufficient to meet the standards for eligibility).

147. *See* McRO, Inc. v. Bandai Namco Games America, Inc., 837 F.3d 1299, 1303, 1315–16 (Fed. Cir. 2016) (finding that the animation technology could not previously perform the synchronizations seen in the instant claims); *Ultramercial, Inc.*, 772 F.3d at 715–16 (determining whether the claims generally describe a technological objective or set forth a precise set of instructions for achieving the technological objective).

improvements in computer functionality.[148] In particular, the improved database in *Enfish* amounted to an improvement to technology that mitigated larger memory requirements.[149] Similarly, the improved method of digital data compression in *DDR Holdings* amounted to an improvement in technology that allowed dual-source hybrid web pages.[150] In sum, the particular solution may be improved computer functionality superseding that which was previously known in the art.

The "particular" portion of the particular solution comes from a "harnessing" test such that the invention sets forth precise instructions for achieving the technological objective.[151] *Ultramercial* establishes that the general-description-versus-precise-instructions generates a categorizing effect such that inventions may pose improvements to technology or technological fields depending on the outcome.[152]

Similarly, *Funk Bros. Seed Co. v. Kalo Inoculant Co.*[153] highlights the dangers of monopolizing technology by declaring patent eligibility for inventions that generally describe technological objectives, and thus, fail to set forth precise instructions for achieving the objective.[154] As such, applicants see an unavoidable catch-22 in seeking more protection with broad claim language and purporting eligibility with narrowed claim language such that claims are not rendered abstract for merely describing

148. *See, e.g.*, Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1339 (Fed. Cir. 2016) (finding an improvement to computer functionality rather than mere economic or business improvements for which a computer is used in its conventional capacity); DDR Holdings, LLC v. Hotels.com, L.P., 773 F.3d 1245, 1258–59, 1265 (Fed. Cir. 2014) (finding that the claims recited a specific way to automate webpage creation by an outside party and include elements from various sources, thus resolving a particular internet-based problem).

149. *Enfish, LLC*, 822 F.3d at 1339 (finding a specific implementation of a solution in software arts).

150. *DDR Holdings*, 773 F.3d at 1258–59, 1265.

151. *See Alice Corp. Pty. Ltd.*, 573 U.S. at 216 (disclosing that while natural laws, scientific principles, and abstract ideas underly all of innovation, such judicial exceptions must be harnessed such that they are used to solve seemingly intractable problems); *see also McRO, Inc.*, 837 F.3d at 1309 (finding that the abstract idea was harnessed in the animation field in a particular manner such that an unknown benefit to the field was asserted in the claims); Citrix Sys., Inc. v. Avi Networks, Inc., 363 F. Supp. 3d 511, 522 (D. Del. 2019) (contending that a claim is not directed to an improvement if the technological benefit solely arises from an abstract idea applied to a well-understood structure).

152. *Ultramercial, Inc.*, 772 F.3d at 715 (finding precise limitations for improved user interfaces).

153. 333 U.S. 127 (1948).

154. *Id.* at 13031.

objectives.[155] Therefore, the claims must at least add specific disclosures when addressing a technological challenge in aiming for eligibility via improvements to technology.[156] Moreover, case law demonstrates that improvements to technology may not be identified if the entirety of the improvements is only reflected in the specification.[157] The owner is granted protection over the claim language, and thus, the claim must embody the improvement. The claims need not recite the improvements verbatim.[158] However, the claim must cover such considerations in light of the specification.[159]

The "harnessing test" establishes that there must be a concrete application of technological solutions to technological problems.[160] While abstract concepts such as scientific principles (e.g., laws of gravity) are a baseline for innovation, any determined inventive concept must harness the technological

155. *See* Voip-Pal.Com, Inc. v. Apple, Inc., 375 F. Supp. 3d 1110, 1145 (N.D. Cal. 2019) (invalidating a patent because the claims failed to reflect the asserted improvements disclosed in the specification).

156. *Compare* IBM Corp. v. Groupon, Inc., 289 F. Supp. 3d 596, 605 (D. Del. 2017) (contending that the claims reflected specificities for the specific architecture behind the claimed computer improvement by reciting how the screen display is generated), *and McRO, Inc.*, 837 F.3d at 1314 (explaining that the challenged claims had the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it), *with* Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (noting that the claims did not require anything other than conventional computing and network components acting in ordinary manners despite arguments for disclosed benefits), *cert. denied*, 139 S. Ct. 378 (2018), *and* Internet Patents Corp. v. Active Network, Inc., 790 F.3d 1343, 1344 (Fed. Cir. 2015) (invalidating patents for failing to disclose specificity in the abstract idea used in addressing a technological challenge).

157. *See, e.g.*, *McRO, Inc*., 837 F.3d at 1316 (finding that the claims encompassed the disclosed benefits of the specification).

158. *See* American Bar Association Section of Intellectual Property Law, Comment Letter on PTO's 2019 Revised Patent Subject Matter Eligibility Guidance (Mar. 7, 2019), https://www.uspto.gov/sites/default/files/documents/eligibility2019comments_a_abaipl_2019mar07.pdf (contending that the 2019 PEG does not appear to require that improvements be explicitly recited in the claim language).

159. *See* Openwave Sys., Inc. v. Apple, Inc., 808 F.3d 509, 514 (Fed. Cir. 2015) (discussing the importance of the specification in determining claim scope); *see also* TNS Media Research, LLC v. Tivo Research & Analytics, Inc., 166 F. Supp. 3d 432, 450 (S.D.N.Y. 2016) (concluding that the claims must reflect any disclosed benefits but need not recite the benefits of the written description verbatim), *vacated*, 223 F. Supp. 3d 168 (S.D.N.Y. 2016).

160. *See* Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 219–21 (2014) (stating that the invention must harness scientific laws and principles to solve problems); Mackay Radio & Telegraph Co. v. Radio Corp. of America, 306 U.S. 86, 98–99 (1939) (suggesting that abstract principles must pose concrete applications).

field in a specific manner.[161] In *Bascom*, the inventive concept of installing — at a specific, remote location — a filtering tool having customizable features for internet users harnessed a technological feature of network technology in a filtering system.[162] Thus, there was a concrete application of internet filtering on generic components in the specific arrangement of technology such that the system allowed increased flexibility and decreased susceptibility to hacking.[163]

*b. 2019 PEG Versus Case Law*

The determinations regarding improvement to technology appear stretched across Step 2A Prong 2 and Step 2B.[164] Under the 2019 PEG, patent examiners are currently instructed to determine whether an improvement to technology exists under Step 2A Prong 2.[165] However, the well-understood, routine, and conventional considerations that are evidence as to whether there is an improvement to technology are notably left in Step 2B of the 2019 PEG, thus following the Step 2A Prong 2 determination of whether an improvement to technology exists.[166] Therefore, Step 2B is not only redundant under the 2019 PEG, but it further creates a discrepancy in current examination procedures.[167] This discrepancy creates a divide in eligibility decisions between federal courts and the PTO. While examiners at the PTO must make determinations of improvement without considerations of conventionality, federal courts hinge decisions for improvements to technology on whether technological tools are merely

161. *See* Ultramercial, Inc. v. Hulu, LLC, 772 F.3d 709, 721–22 (Fed. Cir. 2014) (Mayer, J., concurring) (explaining the need to use judicial exceptions in accomplishing technological objectives); *see, e.g.*, Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1351–52 (Fed. Cir. 2016) (distinguishing between claims of an abstract-based solution using generic components and a practical application of an abstract concept).

162. *Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1349–50 (finding that the invention overcame the abstract idea).

163. *Id.* at 1350.

164. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 53–56 (Jan. 7, 2019) (instructing the examiner to evaluate in Step 2A Prong 2 whether the claim improves technology, yet prohibiting the examiner from evaluating whether claim elements are conventional until Step 2B).

165. *Id.* at 53–56 (instructing examiners to determine whether a practical application exists).

166. *Id.* (instructing examiners to determine whether inventive concept exists).

167. *See* John P. Kong, *Key Practical Effects From the 2019 PEG*, WESTERMAN HATTORI DANIELS & ADRIAN LLP (Jan. 2019), http://www.whda.com/whda/assets/dynapsis/Key-Practical-Effects-From-2019-PEG-John_Kong.pdf (discussing the "conventional" considerations previously used in examination for improvements).

performing conventional activity.[168]

*i. Spotting Improvements*

Determining improvements to technology is arguably subjective due to claim comparisons between pending claims and those set forth in guidance.[169] Improvements to computer functionality generate benefits to the way the computer works and are more objectively classified as improvements rooted in the computing field.[170] As examiners and courts are directed to precedent to determine whether improvements exist, merging considerations of improvements to computer functionality and technology may decrease subjectivity.[171] Improvements to technology could also be evident in finding improvements to computer functionality. For example, the improved database in *Enfish* led to increased flexibility and smaller memory requirements in a computer.[172] Additionally, the improved data compression techniques in *DDR Holdings* led to the dual-source hybrid webpage capability of the computer.[173] Therefore, improvements to computer functionality are likely results of improvements to technology. While this practice may aid the identification of improvements to technology, conflicting standards are brought to light under PTO standards since examiners are unable to consider conventionality of computing activities as seen in federal court considerations.[174]

*ii. The Woes of the 2019 PEG*

Examiners are not permitted to evaluate "conventional" versus "unconventional" activity when determining improvements to technology

168. *See, e.g.*, Alarm.com Inc. v. ipDatatel, LLC, 383 F. Supp. 3d 719, 728 (S.D. Tex. 2019) (stating that the court may find that the patent satisfies 35 U.S.C. § 101 if it is "clear that the specific improvements in the recited computer technology go beyond 'well-understood, routine, conventional activit[ies]'").

169. *See, e.g.*, MPEP (9th ed. Rev. 24, Jan. 2018) § 2106 (highlighting federal case law as a means for comparison to pending claims).

170. *Id.*; Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1351–52 (Fed. Cir. 2016).

171. *See* MPEP (9th ed. Rev. 24, Jan. 2018) § 2106 (showing that examiners are to either directly or indirectly follow federal precedent); Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) (stating that the courts must look to federal precedent in eligibility decisions).

172. *Enfish, LLC*, 822 F.3d at 1335.

173. DDR Holdings, LLC v. Hotels.com, L.P., 773 F.3d 1245, 1259 (Fed. Cir. 2014).

174. *See* Kong, *supra* note 167 (discussing the divide in court decisions and examiner decisions under the 2019 PEG's removal of the conventionality consideration from improvement determinations).

and are left with considerations of: (1) technological arts; (2) technological problems necessitating technological solutions; and (3) particular disclosure of benefits discussed in the specification and embodied in the claims. Determinations of whether claim elements pose conventional activity are notably left out of the evaluation for improvements to technology under the 2019 PEG.[175] However, the 2019 PEG references cases such as *Core Wireless*, *DDR Holdings*, and *Finjan*, which consider the conventional analysis when determining improvements to technology.[176] Moreover, the 2019 PEG instructs examiners to consult the MPEP, which highlights several cases including considerations of conventional versus unconventional activity.[177] As such, there not only exists a discrepancy between *Alice/Mayo* and the 2019 PEG, but within the 2019 PEG itself.

The examiner must determine under Step 2A Prong 2 whether the claim poses, *inter alia*, an improvement to technology, or conversely: (1) insignificant extra-solution activity; (2) general linking to a technological field; or (3) mere instructions to apply a judicial exception.[178] However, the determinations for extra-solution activity, general linking, and mere instructions to apply the judicial exception necessitate evaluations of well-understood, routine, and conventional activity.[179] Under *Alice/Mayo*, the examiner must determine whether a generic element performs well-understood, routine, or conventional activity to assess whether a claim qualifies for a potential improvement to technology.[180] Alternatively, the

175. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 55 (Jan. 7, 2019) (stating that the well-understood, routine, and conventional considerations are not evaluated in Step 2A Prong 2).

176. *See id.* at 7 n.25 (citing *Core Wireless*, *DDR Holdings*, and *Finjan* in the context of the "improvement to other technology or technological field" portion of the 2019 PEG); *e.g.*, *DDR Holdings, LLC*, 773 F.3d at 1257 (finding that the claims posed a solution to problems seen in conventional systems).

177. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 53 (discussing *Enfish* with respect to concrete improvements); *see Enfish, LLC*, 822 F.3d at 1337 (opining that the self-referential database functioned differently than conventional database structures).

178. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 56 (finding that a claim fails the eligibility test if the claim elements merely add insignificant extra-solution activity, generally link the judicial exception to a technological field, or amount to mere instructions to apply the judicial exception).

179. *See, e.g.*, Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 82 (2012) (explaining that conventional post-solution activity does not amount to patentable subject matter).

180. *See* Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 225–26 (2014) (highlighting that claims involving a computer that fail to show differences from any other computer do not constitute significantly more than the abstract idea and generally link the abstract idea to the computer).

claim does not amount to an improvement to technology when generic claim elements performed, for example, insignificant extra-solution activity. It is unclear how the examiner can determine under Step 2A Prong 2 whether alleged generic elements are performing without evaluating whether the element is acting in a well-understood, routine, and conventional manner.[181]

The terms "generic" and "well-understood, routine, and conventional" are not to be intertwined. "Generic" refers to an element itself and "well-understood, routine, and conventional" refers to the element's activity. For example, in *Bascom*, the court suggested that a generic computer's implementation referenced the component's activity in determining whether the invention posed an improvement.[182]

*iii. Much Ado About Case Law*

The discrepancy between the improvement determinations of the district courts in *TNS Media Research* began with the "directed to" inquiry under the *Alice/Mayo* test.[183] Following these determinations, the courts disagreed about whether there was a technological solution to a technological problem.[184] The vacating court, in finding such improvements, considered the claim language for patent-validity.[185] In sum, the *TNS Media Research*

181. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 56 (instructing the examiner to consider whether the elements are performing insignificant extra-solution activity, are generally linking the judicial exception to a field of use, or are providing instructions to apply the judicial exception to a technology).

182. Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1351 (Fed. Cir. 2016) (differentiating between a technology-based solution and an abstract-idea-based solution implemented in a conventional way on a generic computer).

183. *Compare* TNS Media Research LLC v. Tivo Research & Analytics, Inc., 166 F. Supp. 3d 432, 449 (S.D.N.Y. 2016) (finding that the claim was directed toward the abstract concept of double-blind matching), *with* TNS Media Research LLC v. Tivo Research & Analytics, Inc., 223 F. Supp. 3d 168, 181 (S.D.N.Y. 2016) (disagreeing with the previous court's double-blind matching determination and finding that the claims were directed at the concrete idea of data mining for diversified entities).

184. *See TNS Media Research LLC*, 223 F. Supp. 3d at 181 (highlighting the need for a change from conventional activity to purport an improvement before rendering the claims an improvement to technology); Mortg. Grader, Inc. v. First Choice Loan Servs., Inc., 811 F.3d 1314, 1325 (Fed. Cir. 2016) (contending that claims which intend to improve the functioning of a computer may be eligible if the improvement consists of elements operating in an unconventional manner). *Compare TNS Media Research LLC*, 166 F. Supp. 3d at 448 (finding that the claims merely implemented a double-matching technique), *with TNS Media Research LLC*, 223 F. Supp. 3d at 181 (stating that the digital environment poses problems in obtaining data wherein the data, if captured, would pose enormous informative benefits).

185. *See TNS Media Research LLC*, 223 F. Supp. 3d at 181 (contending that the claims pose limited, concrete steps).

court determined that there existed a particular technological solution to a particular technological problem such that the invention could only be implemented on a computer.[186] The *TNS Media Research* court found that the invention offered a precise set of instructions to collect, store, analyze, and cleanse data.[187]

District courts in the Northern District of California further disagree on what subject matter qualifies for conventional activity versus unconventional activity that effects an improvement on technology.[188] The District Court in *Fitbit* found that a method for detecting and recording the physical activity of a person was directed to an abstract idea of collecting and reporting data.[189] The court found that the challenged claims did not purport to effect an improvement in technology because any alleged benefits to the field of portable activity monitoring fail to amount to improvements in the portable activity device's capabilities.[190] The challenged claims are distinguishable from the method claims of *McRO*, which improved computer animation, and the *Enfish* claims, which improved database technology.[191]

This distinction further arises from the existence of an unconventional change to a technological component seen in *Enfish* and *McRO*.[192] In light of *TNS Media Research*, the *Immersion* court incorrectly asserted that the *Fitbit* claims were ineligible due to the statutory class.[193] Further, the

186. *See id.* (stating that the claims disclosed concrete steps rather than high-level abstractions).

187. *Id.* at 182.

188. *See* Immersion Corp. v. Fitbit, Inc., 313 F. Supp. 3d 1005, 1025–26 (N.D. Cal. 2018) (suggesting that the court's determination in *Fitbit, Inc. v. AliphCom*, No. 16-cv-00118-BLF, 2017 WL 819235, at *3 (N.D. Cal. Mar. 2, 2017), is incorrect in light of findings of unconventional changes to technology in *Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1345 (Fed. Cir. 2017)).

189. *Fitbit*, 2017 WL 819235, at *10 (stating that presenting results is nothing more than a mental process and can be done with a pencil and paper).

190. *See id.* (distinguishing the alleged benefits with improvements seen in *Enfish* and *McRO*).

191. *See id.* at **10, 15 (noting that *Enfish* and *McRO* claim subject matter that requires an improvement to technology (i.e., a tool) used in a technological field, and not just an incidental benefit to a technological field).

192. *Compare id.* at *12 (delineating that the structure of a wearable band with a motion detection component and LEDs did not pose unconventional changes to a tool in a technological field), *with* Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1337 (Fed. Cir. 2016) (clarifying that the self-referential database functioned differently than conventional database structures), *and* McRO, Inc. v. Bandai Namco Games Am., Inc., 837 F.3d 1299, 1302–03 (Fed. Cir. 2016) (holding that the claims incorporated unconventional rules relating sub-sequences of phenomes, timing, and morph weight sets to solve a problem in conventional industry practice).

193. *See Immersion Corp.*, 313 F. Supp. 3d at 1025–26 (suggesting that the *Fitbit*

*Immersion* court's suggestion that the *Fitbit* claims may be eligible under *Thales Visionix Inc. v. United States* is incorrect in light of the unconventional arrangement of sensors seen in *Thales* not similarly seen in the wearable band of *Fitbit*.[194] *Immersion* thus demonstrates the conflicting standards of eligibility in the federal court system, thereby highlighting the need for congressional action.

*c. The End of the Patent System as We Know It*

Although the 2019 PEG purports to reduce subjectivity in the patent process, the patent community has found increased unpredictability in the application of the 2019 PEG.[195] Moreover, the Federal Circuit has failed to mitigate such disarray, thereby highlighting the need for congressional action.[196] If the federal courts are making determinations of patentability under *Alice/Mayo*, the PTO is making determinations under the 2019 PEG, and the Patent Trial and Appeals Board uses both tests, applicants are likely faced with difficulty in establishing sufficient evidence for the record in prosecuting and defending patents.[197] In particular, applicants must decide which guidelines suffice for the record to support prosecution at the PTO and defense at the federal court level. The 2019 PEG provides a lower bar for findings of eligibility than the *Alice/Mayo* test, and thus, applicants may be

claims were ineligible for claiming a method rather than a device). *But see* TNS Media Research, LLC v. Tivo Research & Analytics, Inc., 223 F. Supp. 3d 168, 181 (S.D.N.Y. 2016) (finding that the claimed method was not directed to an abstract idea).

194. *See Immersion Corp.*, 313 F. Supp. 3d at 1025 n.4 (suggesting that the *Fitbit* claims may be directed toward a particular, useful configuration of components). *Compare* Thales Visionix, Inc. v. United States, 850 F.3d 1343, 1348 (Fed. Cir. 2017) (finding that the unconventional utilization of inertial sensors results mitigates errors in conventional systems), *with Fitbit*, 2017 WL 819235, at *12 (finding no non-conventional arrangement of LEDs on the band and that each LED performs a conventional function).

195. *See* Bryan McWhorter & Russell Jeide, *2019 Eligibility Guidance Leads to Unpredictable Results at the PTAB*, KNOBBE MARTENS (Feb. 15, 2019, 12:00 PM), https://www.knobbe.com/news/2019/02/2019-eligibility-guidance-leads-unpredictable-results-ptab (explaining the Patent Trial & Appeals Board has, in some instances, adopted the guidance as controlling and, in other instances, mentioned the guidance in passing while ruling under the *Alice/Mayo* test).

196. *See* Gene Quinn, *It May Be Time to Abolish the Federal Circuit*, IP WATCHDOG (July 9, 2019), https://www.ipwatchdog.com/2019/07/09/may-time-abolish-federal-circuit/id=111122/ (discussing the Federal Circuit's failure in policing the unpredictability of regional courts and in attempting to spur innovation through strong patents).

197. *See* Gvoth, *supra* note 20 (highlighting the ongoing uncertainty in applying 35 U.S.C. § 101 by the PTO and Federal Circuit).

confronted with inconsistent decisions in light of such unpredictability.[198] The University of Florida recently faced conflicts in eligibility standards when the Federal Circuit invalidated claims that are similar to those seen in the PTO examples set forth under the 2019 PEG.[199] Here, the claims were directed toward a bedside device that converted data streams from bedside machines regardless of the originating format.[200] This claim appears to match Example 42 of the 2019 PEG, which recites an improvement to technology in claiming conversions of non-standardized formats of data from various sources to standardized formats.[201] While the claims are admittedly not identical, applicants must cover multiple bases in discussing both tests for eligibility, thereby overflowing the record, to ensure that there is sufficient protection for impending challenges.[202]

Frustrations among applicants vanquish the patent system as currently set.[203] In particular, applicants likely will take inventions overseas in search of more predictable standards, rather than seeking patent protection in the United States.[204] Business competition in the United States may fall as China and other competing countries will be at a greater advantage to collect

198. *See* Daniel Rose, *Federal Circuit's Decision in* University of Florida Research Foundation v. General Electric *Raises Questions with Subject Matter Eligibility Guidance*, FOLEY & LARDNER LLP: IP LITIG. CURRENT (Mar. 4, 2019), https://www.foley.com/en/insights/publications/2019/03/federal-circuits-decision-in-university-of-florida (discussing the discrepancy between the invalidation decision of *University of Florida Research Foundation v. General Electric* and Example 42 of the 2019 PEG).

199. *See* Univ. of Fla. Research Found., Inc. v. GE, 916 F.3d 1363, 1368-69 (Fed. Cir. 2019) (invalidating claims disclosing conversions from received data streams to an independent format to integrate data from bedside machines). *But see* U.S. PATENT & TRADEMARK OFFICE, *supra* note 56, at 17–19 (concluding that claims for conversions from non-standardized to standardized formats recited an improvement over prior art systems by allowing the real-time sharing of information in a standardized format independent of an original format).

200. *Univ. of Fla. Research Found.*, 916 F.3d at 1368.

201. U.S. PATENT & TRADEMARK OFFICE, *supra* note 56, at 17–19.

202. *See* DeCarlo & Zalepa, *supra* note 114 (instructing applicants to anticipate a multitude of challenges under various standards).

203. *See* Meredith Addy, *Confessions of a Frustrated Patent Attorney: The Telephone Call*, IP WATCHDOG (Oct. 1, 2017), https://www.ipwatchdog.com/2017/10/01/confessions-frustrated-patent-attorney-telephone-call/id=88636/ (discussing the growing frustration of patent seekers due to expense and unpredictability of the patent system).

204. Eileen McDermott, *Judge Paul Michel: Look to Congress, Not Courts, to Fix the U.S. Patent System*, IP WATCHDOG (Apr. 4, 2019), https://www.ipwatchdog.com/2019/04/04/judge-paul-michel-look-congress-not-courts-fix-u-s-patent-system/id=107948/ (contending that various problems in the U.S. patent system incentivize inventors to take investments overseas).

innovators seeking fair protection.[205] Patents directly correlate with a thriving economy, and the United States will see a resultant dip in the economy if applicants are unable to file.[206]

If applicants decide to keep innovation in the United States, innovation will likely be encompassed in the hands of the few under the guise of promising protection in the world of trade secrets.[207] Any imbalance in categories of protection will affect the respective systems.[208] Vitiating the trade secret laws would likely lead to trivial filings in the PTO, and similarly, the end of the PTO would lead to increased action under trade secrets.[209] However, decreased filings at the PTO could also affect the public domain.[210] The patent system strikes a bargain between public disclosure of scientific improvements and termed protection for the owner.[211] Trade secrets may offer indefinite protection without necessitating disclosure.[212] As such, business method patent seekers may privatize inventions of processes, thereby hindering the patent system and decreasing public access to innovation.[213]

## IV. CONGRESS SHOULD DEFINE ELIGIBLE SUBJECT MATTER AND IMPROVEMENTS TO TECHNOLOGY OR TECHNOLOGICAL FIELDS

Tensions between abstract ideas and the eligibility of business method patents stress the need for Congress to define what subject matter constitutes an abstract idea and to specify standards within that definition.[214] Congress

205. *See id.* (suggesting that China will dominate the market if there are no resolutions to the patent system).

206. *Id.*

207. *See* Kewanee Oil Co. v. Bicron Corp., 416 U.S 470, 483, 487–88 (1974) (highlighting the overlap between patents and trade secrets for processes).

208. *Id.* at 485 (suggesting that the PTO would be overburdened with patent applications if seekers of trade secrets applied for patents).

209. *Id.* (arguing that trade secrets are directed to ineligible material and would be doomed to be rejected at the PTO).

210. *See* Paul Michel & John Battaglia, *It Is Time to Fix the Courts' Section 101 Tests on 'Directed to . . .' and 'Abstract Ideas'—Whether in* Chamberlain *or Beyond (Part I)*, IP WATCHDOG (June 9, 2020), https://www.ipwatchdog.com/2020/06/09/time-fix-courts-section-101-tests-directed-abstract-ideas-whether-chamberlain-beyond-part/id=122302/ (highlighting the bargain of a limited protection in exchange for the disclosure of innovations).

211. *Kewanee Oil*, 416 U.S. at 490–91.

212. *Id.*

213. *See* Michel & Battaglia, *supra* note 210 (stressing that the current state of patent eligibility will undermine the innovation that the Patent Act purported to promote).

214. *See* Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1334 (Fed. Cir. 2016) (contending that the Federal Circuit must compare challenged claims to precedent since

should amend 35 U.S.C. § 101 such that the "abstract idea" category under the judicial exception is severely limited, thereby vitiating subjectivity.

The patent system was enacted to spur innovation in the economy, but now discourages innovation in the most modern technologies due to its inconsistencies and unpredictability.[215] Businesses thrive on the competitions to compile the most up-to-date technology into portfolios, and big and small businesses alike will suffer if the patent field loses steam. Businesses may look overseas in search of more consistent standards, thereby taking innovation away from the public. The current tensions between eligibility standards may drive the system to the extreme that 35 U.S.C. § 101 strove to prevent.

Congressional action would mitigate inconsistencies between the courts and agencies. Instead of acting as a safety net for restricting patentability, 35 U.S.C. § 101 should provide more defined standards for when to reject an invention that has a statutory class. Some members of the patent community agree that 35 U.S.C. § 101 acts as a safety net to reduce the number of patents that enter the market for the wrong reasons.[216] In setting forth consistent standards, Congress should adopt guidance similar to standards set forth in the 2019 PEG under PTO Director Andrei Iancu's mission to bring eligibility in closer light with current technology.[217] Not only would such practice mitigate unpredictability, but the patent system would permit innovation without fear of court invalidation. By bringing a member of the "outside" in to direct the agency, all sides of the patent system have begun to collaborate in striving to understand eligibility.[218]

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the U.S. Supreme Court has yet to define "abstract idea").

215. *See* John Dubiansky, *Competition Advocacy and the Patent System: Promoting Competitive Markets for Technology*, 25 B.U.J. SCI. & TECH. L. 145, 159 (2019) (citing FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION LAW AND POLICY 7 (2003)) (discussing the bargain between disclosing inventions with the public and receiving protection for an invention for a set time frame to provide incentives for innovation).

216. S*ee* Joe Mullin, *Experts Warn Congress: Proposed Changes to Patent Law Would Thwart Innovation*, ELEC. FRONTIER FOUND. (June 12, 2019), https://www.eff.org/deeplinks/2019/06/it-should-be-clear-now-messing-patent-laws-section-101-bad-idea (warning the Senate that 35 U.S.C. § 101 is a powerful tool in rejecting patent applications that should not be protected, thereby allowing small businesses room to innovate). *But see* Andrei Iancu, *The Current State of Innovation within the U.S. Legal System — Views on Evolving Protection for Intellectual Property Rights in the United States from the USPTO and the Courts*, 101 J. PAT. & TRADEMARK OFF. SOC'Y 11, 17–18 (2019) (stating that eligibility must align with the current state of technology such that there are fewer rejections under 35 U.S.C. § 101).

217. Iancu, *supra* note 216, at 13.

218. *See* Dorit Rubinstein Reiss, *The Benefits of Capture*, 47 WAKE FOREST L. REV.

Congress should implement a revised standard for eligibility based on the improvement standard set forth herein and the 2019 PEG. Additionally, Congressional action should include clarifications to the improvement to technology standard. If Congress adopts the 2019 PEG, the technology standard should be clarified for compatibility with case law precedent.

## V. CONCLUSION

Monopolization of judicial exceptions could impede rather than promote innovation, "thereby thwarting the primary object of the patent laws."[219] However, if patent eligibility is too restrictive, such unforgiving restrictions could result in the impediment of innovation. Bringing eligibility standards in line with current states of technological innovation is the best option for saving the patent system and for continuing to promote business growth. The 2019 PEG, in purporting to streamline examination procedures, is actually increasing eligibility rates over what is seen in the federal courts under the *Alice/Mayo* test. The differing requirements create a discrepancy in eligibility determinations between the agency and the courts. The Patent Trial and Appeals Board is currently caught between a rock and a hard place because it must choose which test to apply. This election of which test to apply results in randomized outcomes. The patent system may become stifled as applicants are restricted in the subject matter they believe they can patent. For this reason, Congress must step in to clearly define what subject matter may constitute an eligible patent, and clarify the precedent for improvements to technology or technological fields.

569, 573 (2012) (arguing that "capture" allows collaboration and offers benefits to agencies and the public).

219. Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 216 (2014).

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Volume 9, Issue 2 **AMERICAN UNIVERSITY BUSINESS LAW REVIEW** Pages 123–312 2020