The Value of Information in Capital Markets

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This article asserts that the value of an asset should be thought of as the sum of (a) the cash flows generated by that asset and (b) the value of information that the holder of the asset will receive by virtue of his ownership:

$$V = CF + i$$

This formulation differs from the traditional view[2] that the value of an asset equals the cash flows from that asset:

$$V = CF$$

The two views are consistent when the value of information (i) an owner derives from the asset is zero. This scenario may hold when the asset produces no information, or when the owner does not pay attention to the information an asset generates. This article argues that investors and business people should take pains not to fall into either category.

Said another way, if the value of information exceeds zero to an individual, then he can buy the asset on the market for the value of its cash flows and get the information for free, or sell a participation – an ownership interest in the asset with limited information rights – for the price he paid and get a return of his capital, while retaining something of value. Some might argue that even if the theory holds, in practice i has no value, and the old formulation remains valid. My goal will be to provide actionable examples of i such that its value in cash can be quantified.

A saying in the investment community, "Either you make a lot of money or you learn a lot", touches on the thesis of this article. I disagree that the two outcomes are mutually exclusive, or, in a softer reading, that the value of CF dwarfs i in most circumstances. I agree with the saying in that i can make investments compelling even when the value of their cash flows is negligible. That is, i can potentially make an investment worthwhile, which we can define as likely to generate more money than you put in, even when it generates zero cash.

A final objection could be that since we count the value of i in cash, the value of CF already encapsulates i, since CF captures all cash flows associated with an asset. That may be true, but that's not how people normally think about CF. For example, it would be strange to say that CF, at least in academic literature, includes windfall benefits from the government awards to people who own assets, or the social benefits that come from being invited to a club for owners of an asset (e.g., a car)[3]. Yet people make decisions on the basis of i in both scenarios.

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[S] See, e.g., Richard A. Brealey, Stewart Myers, Franklin Allen, "Principles of Corporate Finance" (13th Ed., 2019).

[S] See generally Alfa Romeo Owners Club, https://www.aroc-usa.org/; Porsche Club of America, https://www.pca.org/.

Consider this scenario: an asset increases the odds of winning the lottery (an amulet). The asset is a rock. What would you pay for the asset? You would say this is nonsense, because a rock cannot increase the odds of winning the lottery, that this is not how odds or rocks or lotteries or winning works, that this is magic. True. Most people believe in some form of magic, and to the extent i can be thought of as a free benefit to ownership, a way to generate money from something that's worth "nothing", it certainly fits that definition. The concept also fits the definition of an externality, more specifically, a positive one.[4] In that sense it is just part of a rich tradition of discovering connections where none were thought to exist.

I. Examples of i

A. Loans

A loan is a payment to a person that the person has to pay back at a specified point in time, in an amount that an observer can determine at the outset of the transaction. The person who gives the money is the lender. The person who receives the money is the borrower. The borrower may be an individual or an entity; if the purpose of the entity is to generate a profit, I would call the loan a "business loan". Other types of loans include student loans (borrowed by individuals to pay for education), mortgage loans, auto loans, and personal loans.

In the US, loans to companies vary in size. Loans in excess of $5 million comprise the majority of the $120 billion or so "loan market". In most of these loans, the lender puts in place an agreement that lays out the identity of the parties, the amount the lender gave to the borrower, the schedule of repayment, the interest rate, and a number of conditions that govern the loan. It is customary for the conditions to include a provision that requires the borrower to provide the lender with information about their operations at least every 90 days ("quarterly"), though many loans include monthly, weekly, and sometimes even daily reporting.

The reporting requirements, sometimes called "information rights", include several pages of definitions and stipulations. In addition to periodic reporting described above, information rights usually require the borrower to provide budgets and updates on unusual events. Information rights also give the lenders the power to examine the borrower and request any additional documents they may wish to see. Lenders often include provisions that cover examples of such documents in the first place, such as an inventory build, a borrowing base, a store-level performance metric, a measure of physicians, construction progress, and so on.

Most loan agreements make it clear that a lender can do whatever they wish with both their powers under the agreement and any information they receive pursuant to information rights. Some loan agreements include a confidentiality provision. Confidentiality provisions usually require the lender to use commercially reasonable efforts to prevent the disclosure of information they receive from the borrower to third parties outside the context of law enforcement. Confidentiality

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[S] See, e.g., Hemant Bherwani et al., "Valuation of air pollution externalities: comparative assessment of economic damage and emission reduction under COVID-19 lockdown", Air Qual Atmos. Health (2020) (available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7286556/); Livia Baciu, Andreea – Oana Iacobuţă, "Once Again on Negative Externalities: Between Regulation and Liability", Procedia Economics and Finance (2015) (available at https://www.sciencedirect.com/science/article/pii/S2212567115000465).

agreements permit the lender to disclose information to their advisors, counsel, and sometimes also co-investors. Confidentiality provisions do not usually address whether a recipient of information can apply the information they received to other situations, such as when evaluating a second investment in an industry.

B. VC

Venture capitalists ("VCs") buy stakes in companies. VCs often say they prefer companies whose business is growing, or those that develop systems or processes different from ones that existed before. In practice, it is unclear to what extend VCs do what they say. Growth often takes place following investment; most companies that attract VC capital have attracted VC capital in the past. The author believes that in the current market, the likelihood of growth and success for any given company depends far less on the company than on whether and how much capital it attracts for arbitrary reasons, meaning that any company that attracts money has a good chance to grow, while almost no company can grow without attracting money. In this context, it is much more likely that VCs allocate capital based on their idiosyncratic observations of who – what kind of person – should get it, as opposed to any objective measurement of performance. We can pretend that's not the case for the purposes of this paper, however, and proceed as if the characteristics that attract VCs in particular have more to do with return on invested capital and retention statistics than with the haircut of the person pitching the idea and the neighborhood where they grew up.

Companies provides VCs with information about their business. This information can differ from the information that a lender gets. Some VCs say that their information is better because they can sit on the board of directors for a company as part of their agreement to buy stock in the company.[5] [6] Boards typically meet once a quarter, though sometimes less frequently.

VCs often trumpet the value of information they receive by virtue of being on the board when speaking to a general audience, such as the press or a conference.[7] They explain that this information allows them to detect problems early, and identify opportunities in collaboration with management. In private, VCs say that the information has little value. They explain that companies that are growing usually have little time or incentive to provide information, since investors like them because of their "growth"; companies that are not "growing" have the same problem for the

[5] Lenders may take an observer seat. Many lenders avoid taking board seats where they vote on matters to avoid tainting their status as parties with no duty to the borrower (lender liability).

[6] There is no definition of what information a board should receive. See., e.g., Mahendra Ramsinghani, Brad Feld, "Startup Boards: Getting the Most Out of Your Board of Directors" (2013). Some boards get lots of information, some little. There appears to be a consensus that boards should not do much. See Ben Horowitz, "The Hard Thing About Hard Things" (2014), describing limited action at the board level; Marina von Neumann Whitman, "The Martian's Daughter: A Memoir" (2012), describing limited interaction with companies during author's role as a director.

[7] See, e.g., Angus Loten, "As Deal Making Picks Up, Tech Chiefs Worry About Software Intergation", Wall Street Journal (Jan. 25, 2023) ("Sameer Dholakia, a partner in the growth investment practice at venture-capital firm Bessemer Venture Partners, said a big risk of M&A integrations is the buyer's inability to iron out differences in technology, such as programming languages or underlying cloud support.").

opposite reasons – they are spending all their time trying to achieve "growth" and until they do, investors have no interest in their information.[8]

State law establishes the rules for how investors apply information they receive from companies. If the investor is on the board of a company, the investor – a director – usually has the duty to act in the best interests of the company. The investor cannot use information from the company to pursue business outside the company; doing so would likely constitute usurpation of opportunity. The director must also use their best efforts to help the company achieve its objectives, a requirement that stipulates the priority of application.

Some companies waive the duties for their board members. Other board members take the approach that ignorance is bliss. For example, they use conclusions they make from budgeting for one company to evaluate the performance of another. VCs brag about this practice, yet it likely violates the rules laid out by Delaware, at least when the VCs sit on the board of the company and do not receive formal approval to use information elsewhere.

C. VC Non-Board

The rules for information that a company gives investors when those investors do not have control are less clear though somewhat more defined than in the control context. An investor that receives information from the company generally does not owe any duties to the company, unless the investor has agreed to take on those duties in a contract. So an investor can receive a business plan, an observation of the market, a list of customers, or a set of prices, and use them to start a competing business, or invest in one. Customarily, companies require investors to sign an NDA to access materials as a way of restricting the use of their information.

NDAs have several flaws as they are customarily drafted. First, NDAs usually have a fixed term. Often this term concludes after 1 or 2 years; parties routinely negotiate this during business discussions. Many NDAs provide a stipulation that the document continues to protect any trade secrets the company discloses to the recipient after the term, but for the rest of the information, that is not the case. Business claims to abide by the rule that information on prices, budgets, and so on would be of limited value after such time, but evidence suggests that this "defense by staleness" is more of a narrative than a reality.[9] In the medium term, defined ad 5-10 years, the value content of information appears to be binary: information either has value or not, and any reduction in the value of this information does not have enough magnitude to move the information itself from the first category to the second.[10]

A second flaw of the NDA is that the document rarely deals with derivative property. It prevents disclosure, and sometimes restricts use. It does not define "use" or lay out a framework for situations where the recipient integrates information disclosed by the company into his understanding of the industry to make decisions. It is unclear whether most companies would even

[8] Many investors admit that they rarely read the information they receive from the majority of their portfolio companies. "You read the top 3 or 4 businesses, you skip the next couple, and the rest [20, 50, or 100] you just don't have time for." (private conversation with prominent technology investor).
[9] Markets change slowly.
[10] It is more likely that information can move from the second category – not having value – to the first.

oppose such action if they knew it was a possibility, yet because the value of information scales with the breadth of its application, this type of awareness[11] likely informs almost every action the recipient takes after disclosure. For example, many NDAs specify that information provided by the disclosing party can only be used for a particular purpose, but both the definition of "purpose" in the document and application of the concept elsewhere in business tend to be vague. While reverse-engineering a proprietary product would seem to be contrary to the disclosing party's idea of purpose, using information about a company to move away from an industry as a whole would probably not raise the same issues in their minds, yet the two actions may well have a comparable impact.

D. Commercial Real Estate

Commercial real estate is a niche that covers buildings other than homes and apartments: offices, stores, factories, parking. The total assets in the space amount to trillions of dollars. Investors in commercial real estate include individuals, real estate investment trusts ("REITs"), private equity firms, and other institutions. A handful of REITs owns the majority of malls in America.

These landlords negotiate leases with stores. The landlords work to create an environment that involves a mix of retail and restaurants, aligned along a theme. Their leases often require stores to provide reporting on operations, similar to credit agreements, so that the landlord can assess the health of the tenant and sometimes check compliance with revenue-sharing requirements.[12] Since the landlord receives this information from all tenants in a mall, across many malls, they have a lot more awareness of the market than a given tenant.

For example, by comparing similar chains, landlords can see what stores tend to do well in what locations. That can erode leverage for tenants who may wish to close down weak stores in bankruptcy. The landlord can threaten to close locations that perform, or not renew their leases, and usurp any market value the tenant has in these situations. Landlords have used these tactics to accumulate stakes in companies.[13]

Participants in the industry understand these dynamics. Yet the idea that information that belonged to a tenant could be restricted in its application against other tenants does not come up. The closest analog may be situations where an institutional landlord evaluates a hedge against their risk with a tenant through public instruments, such as bonds. This paper expresses no view on how those decisions should work.

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[11] Some call it "experience". This paper does not argue that an individual should not own his experience in a domain, though some actors have taken that position [cite to ToS]. Rather, it argues that everyone would benefit from a more explicit understanding of ownership related to experience, including in the event this understanding would leave the actor with less "intellectual property" than before. The ambiguity itself creates costs in excess of the reduction of assets.

[12] In fact, leases and loans look similar in other ways. Both create leverage: a set of fixed obligations that the party has to cover. The difference is that leases are typically not a way to transfer cash to the tenant. The exception is sale-leasebacks, where the financing component drives the transaction.

[13] See, e.g., Esther Fung, "Property Owner Simon Sees Buying Tenants as a Way to Boost Malls", Wall Street Journal (Jun. 23, 2020) (available at https://www.wsj.com/articles/property-owner-simon-sees-buying-tenants-as-a-way-to-boost-malls-11592913601).

E. Cars

It is helpful to contrast information from assets in finance with information from assets outside of it. When a person buys a car, they receive information about the car by virtue of using the automobile. The person may learn that the car accelerates slower than they expected, or that it has less insulation, or that the air conditioning works especially well, or that it has a terrific sound system. These observations belong to the driver.

The driver may also learn that service at their dealership takes a long time, or that the same service at a different dealer takes a lot less time. These observations may seem as mundane as the ones above, but they relate to something other than the car. The information about dealers reflects the state of the market for services related to cars of the same make in the driver's region. The contract for a car does not address these observations or attempt to restrict their application, even when the contract, such as a lease or a short-term rental agreement, conveys only fractional ownership.

Yet some automakers have started to push back against this state of the world, however natural it may seem. Tesla asks drivers to sign a non-disclosure agreement regarding defects. Ferrari prohibits certain resales and reserves the right not to sell to drivers whose character the company deems incompatible with its brand. Ford's move to remove buyout options from vehicles like the F-150 Lightning[14] can be viewed as a way to restrict access to information about resale values for the truck. The fight over the right to repair automobiles without the manufacturer's permission relates to a different facet of this topic: the reliance of even physical objects on information for their day to day operations, and the degree of control a party has over physical objects and legal ones (such as companies) by virtue of controlling information.

In this sense, the concept of information about physical objects falls into the tradition of viewing ownership as a bundle of rights. This article supports this formulation.

F. Art

An extreme example of informational externalities associated with an asset comes from art. People buy art for various reasons. Some may enjoy how the art looks, but a portion of demand comes from individuals seeking to affirm their status. In this context, purchasing a painting can bring benefits like becoming known as a "collector" and being invited to events for people who own paintings. If one values this audience, buying a painting can be just a way to network, like buying a ticket to a conference.

Information rights for art are not a topic that professionals ignore. On the contrary, there is a developed body of law about ownership associated with creative works.[15] This body of law is at the

[14] See Jonathon Ramsey, "Ford eliminates end-of-lease purchase option for EVs", Autoblog (Jun. 23, 2022) (available at https://www.autoblog.com/amp/2022/06/24/ford-ends-purchase-option-on-leased-vehicles/).

[15] See Andy Warhol Foundation for the Visual Arts, Inc. v. Goldsmith (oral argument: https://www.oyez.org/cases/2022/21-869).

center of attention for practitioners in the field.[16] Yet even the paradigms tested in art law do not consider the ownership of introductions generated by a picture – such a result sounds too crazy.[17]

G. Public markets

Public markets involve two definitions: 1) assets that can be bought or sold on a centralized exchange, and 2) assets whose information must be disclosed to the public by law. Both have shortcomings. Many bonds are instruments that investors consider to exist in the public market but not ones sold on a centralized exchange; the liquidity for these – the volume available for purchase or sale in a period of time (a day, a week), or, conversely, the length of time necessary to buy or a sell of unit of ownership ($1 million of face value, $10 million of face value) – can be sparse. Cars and medications are assets with mandatory disclosure that investors typically consider private.

Suffice it to say that an asset subject to mandatory disclosure and one traded on a centralized exchange is part of the public market. The definition picks up most stocks and some bonds, depending on the definition of an exchange. It appropriately excludes edge cases like non-traded BDCs. The first prong, the requirement for public disclosure, also reflects design decisions like the exclusion of loans from the concept of securities.

Authors across disciplines have written about the use of information in public markets. Some of this work deals with questions about disclosure permitted by both the company and the law. The conclusions this body of scholarship reaches may differ from that of enforcement agencies and courts. Yet the unspoken truth is that the status of information is critically important and can be regulated by contract, a conclusion we endorse.

There is an irony to the view that this paper offers. A number of assets in the world – film, music, software, databases, drug patents – consist of little more than information. Professionals think about these assets as information, and have invested time and capital and defining how this information flows in a world of physical ownership and human beings. Their field may lack consensus on some questions, or face problems elsewhere, but they agree that information is important, and have supported the growth of these industries over a century.

Other types of assets consist of more than information. They include buildings, machines, people's time, and money. Professionals almost never think of these assets as producing information about their constituent elements. Owning a rental property leads to information about the demand for rentals in a particular area, the price of hotels in this area, the methods of advertising, the sources of tourism and business travel, the patterns of such travel, the costs of cleaning, the providers of cleaning services, and so on. A loan for a car generates information about the value of the car, the process for transferring title, the cost of insurance, and so on. An investment in a factory provides so much commentary on society that one can fill a book with it, even if the factory is shuttered – property laws, environmental regulations, the cost and method of procuring electricity for industrial

[16] See Steve Schindler & Katie Wilson-Milne, "Skepticism and Optimism Around Art NFTs", The Art Law Podcast (Jun. 2, 2021) (available at https://artlawpodcast.com/2021/06/02/skepticism-and-optimism-around-art-nfts/).

[17] But see U.S. v. Ogale, 378 Fed. Appx. 959, 960-61 (11th Cir. 2010); SEC v. Panuwat, No. 3:21-cv-06322-WHO (N.D. Cal.); Jay Dubow, Seth Erickson, Ghillaine Reid "SEC's New Insider 'Shadow Trading' Theory Survives Its First Test", Troutman Pepper (Feb. 1, 2022).

purposes, security, and so on. The volume of information that even a coffee shop generates in a day likely compares to the entire catalog of the Beatles. When professionals do concentrate on the information that comes from a business, they typically seek to carve it out as "IP" or "trade secrets", as if to say that the rest of the body has no soul.

The body is the soul. Businesses generate information 24/7/365. The volume of information is a function of only the tools we have to measure it. This information is extremely valuable and we should agree on who owns it.

II. Enforcement costs of capital and reputation

A. Litigation and detection

One challenge related to i lies in the costs of enforcement. The high costs of enforcement related to theft of i may explain the lack of attention to the subject to date. In the public arena, a significant portion of enforcement actions related to the use of information come from the SEC, a government agency whose mission is "protecting investors, maintaining fair, orderly, and efficient markets, and facilitating capital formation." While the SEC's mandate may extend to private markets, it spans only securities, and thus does not include assets like leases or loans. That said, the agency's supervision of investment advisors applies to parties whose recommendations cover assets other than securities.

The costs of enforcement include litigation, an expense that can range from thousands to hundreds of millions of dollars, or more, depending on the size of the counterparty, their willingness to fight, the strength of the claim, and its success in courts. While these numbers may seem large, they fall in line with other commercial litigation, and compare favorably, from the perspective of the client, to the cost of IP litigation in areas like software. The cost of litigation is therefore unlikely to explain the scarcity of proceedings related to information. A rational party would always compare these costs to the expected benefits and elect to move forward only when the latter exceed the former, meaning that it could pick expected winners for any size of cost; the apparent inability to do so suggests that something about that framework doesn't make sense.

A more likely explanation for the dynamic is that the theft of i is hard to trace.[18] The examples we discussed above involve multiple sources of information. From the perspective of any given asset, i is just part of the mosaic an investor builds. Perhaps i is not dispositive to the investor's decision to take or abstain from an action.

Tort law has built an architecture for dealing with these types of questions. The notions of proximate causation in healthcare, for example, have been heavily litigated at state and federal levels. Enforcement of i could piggyback on these developments. Like torts, enforcement of i should be primarily a private matter (though government could get involved)[19], and should thus require only proof by a preponderance of the evidence, a standard much lighter than fraud or other types of cases.

B. Reputation

[18] Forthcoming work on tracing: salting, also for prices (floats).
[19] See United States v. Aleynikov, 676 F.3d 71 (2012).

The other challenge for enforcement of i is that it makes the victim look bad. In a world where business operates through relationships, a party that believes an investor (or porential investor) misappropriated its information may face the choice between doing nothing, on the one hand, and watching its business slowly collapse, and becoming the first mover in an untested arena. Even if it succeeds in enforcement, the company could alienate other investors, reduce its access to capital, and increase its chances of failure. In this context, incentives trap the parties whose information has been stolen.

The effect could persist even among well-meaning investment communities due to the prevalence of inaction. Suppose Fund A violated the terms of an agreement on the use of information from Company 1, and Company 1 filed suit. Fund B is now considering engaging with Company 1 or Company 2 on a potential investment. Even if the principals of Fund B have every intent to honor the terms of a contract they sign with Company 1 to access information, they would understandably be more nervous to do so than with Company 2. While Company 2 has never enforced its information rights, meaning the downside of a contract with it is approximately zero, Company 1 has, creating a liability on an expected value basis; investors don't like liabilities.

There are some organizations that think differently. They pride themselves on identifying opportunities others ignore and on having systems in place to ensure protection in environments that others perceive as carrying risk. These organizations may prefer Company 1 over Company 2 because they perceive Company 1 as being more receptive to their offer, or more innovative, or both. Yet by definition, investors like this – be they contrarians or special situations focused – make up a minority of the market (otherwise, there would be no consensus for them to oppose).

There is also a rich history of delegation in proceedings related to information, where parties transfer their rights to entities that specialize in enforcement. Sometimes the latter are called "trolls", and they are common in patents. There, the "aggregators" enter into agreements with smaller companies to pursue recovery in exchange for a share of the returns. At times, these strategies have been successful in generating profits for the trolls, though at the cost of significant controversy;[20] it is unclear whether operators have been as happy with the results. Music publishers provide another example.

Trolls offer a solution to the reputation problem, in that they substitute their own reputation for that of the operator. In doing so, however, they create a new problem of guilt by association. If the operator was concerned that enforcement on their own could hurt relationships, having a troll step in their shoes is unlikely to change the outcome. Plus, by virtue of bringing in such an enforcer – an entity with a reputation for aggressive tactics and without the context of commerce to incentive settlement – the operator gives up any chance of enforcing its rights and retaining the upper hand in terms of presentation.

III. Queries and Prescriptions

[20] See David Segal, "Has Patent, Will Sue: An Alert to Corporate America", N.Y. Times (Jul. 13, 2013) (available at https://www.nytimes.com/2013/07/14/business/has-patent-will-sue-an-alert-to-corporate-america.html).

The observations above raise a number of questions. Exploring them can help contextualize some of the suggestions I offer for moving forward. These hypotheticals can also explain the paths not taken. I do not mean for the questions below to appear exhaustive.

Deft, Inc., a manufacturer of mattresses established in 1950, goes through a bankruptcy. The process, under Ch.11 of the code, results in Deft's lenders owning all of the company. The plan stipulates zero recovery for equity investors. Do these investors have the right to use information they received from Deft under an NDA for other investments in the mattress industry?

Consider Alt, a smaller competitor to Deft. Alt also went through a restructuring, as is common for companies in the same industry, but was unable to secure financing for continued operations, in part because it required protections for its information as part of any such package. Alt liquidates and dissolves its entity. Do former lenders to Alt have the right to contravene language in their loan agreements that stipulates that they cannot use information from Alt for any purpose other than evaluating the performance of the loan (does it matter whether the contract states that such restrictions shall continue for a period of 5 years, regardless of the status of Alt)?

Beta is a non-bank lender, funded by capital from pensions and endowments. Beta receives an application for a loan from Queens Mattress, a seller of mattresses, that includes a stipulation restricting the use of information from Queens for purposes other than monitoring the performance of the loan. Beta aspires to be a leader in lending, including with respect to principles of sharing information. If Beta agrees to provide Queens Mattress a loan on these terms, can Beta ever practically make another loan to a mattress company without putting itself at risk? Should it? Can Beta compare the performance of Queens Mattress and a construction business when deciding on whether to sell a portion of one or both loans?

Beta acquires a portion of the loan to Deft in the secondary market. To do so, Beta executes a joinder to the credit agreement between Deft and a group of lenders; the credit agreement includes restrictions on the use of information from Deft. Can Beta use similar information Deft disclosed during its bankruptcy filings – available to the public on the internet - for purposes that would be prohibited under the credit agreement?

Out of an abundance of caution, Beta's counsel requests consent from Deft to use information to consider a loan to Furn, Inc., a retailer. Deft is operating as a debtor in possession. Deft's CEO provides the consent to Beta. Is this consent sufficient?

Vega Ventures, a venture capital fund, reads about the developments in the world of mattresses. Vega requests consents to use information from the CEOs of each of its 120 portfolio companies. 40 of those companies are no longer in existence. Who can provide consent for Vega for those companies?

Vega's consent includes a retroactivity provision that stipulates that it had the right to use any information it received for any purpose as of May 1, 2015. Is this provision valid? What body of law would one use to evaluate this question? What happens if it is not valid?

What are the anti-trust repercussions of Vega's request? Say Vega requires any companies that seek capital from it to sign the consent prior to their first conversation, and then to provide an itemized payroll for the last 12 months as a way of validating those companies' spending.

SlantSystems, a company that builds software for controlling the angle of solar panels, is reviewing its policies on sharing information in connection with a recent investment from Perspective Partners. Perspective Partners specializes in making growth and buyout investments in profitable middle market companies in the technology space. SlantSystems has previously disclosed the pricing for its software, calculated as a function of the value of the assets the company manages, to prospects on the phone but without an agreement on confidentiality. SlantSystems believes its pricing model is unique and provides the company with a competitive advantage. Should it require an NDA from prospects as a condition to disclosing the price? Why or why not?

In the context of these illustrations, I propose a framework for enforcing rights to information through not-for-profit trade associations formed by groups of companies. These trade associations should charge fees for the protection they provide as a function of the revenue of each member; the fees would go to a pool to fund expenses. A trade association could only use the fund for matters related to a party outside the association. In doing so, they could use clearinghouses like Verisk Analytics as a model.

This approach is preferable to enforcement by individual companies. It spreads the costs of enforcement. It also reduces the reputational burden associated with direct or indirect enforcement by virtue of including a group of companies. The collective provides assurance that the company whose rights have been infringed is not an outlier in terms of behavior; it could, conceivably, also provide a way of shielding the identity of the victim.

The approach also beats enforcement by a government agency. It is possible that after an initial wave of enforcement actions, the market could reach an equilibrium that allocates rights to information in a fairly predictable and neutral way. In such an event, the need for further enforcement could fall. An agency, however, would be unlikely to want to reduce its own staffing.

Congress could pass a law expanding the scope of the SEC's duties to include patrolling information shared among parties to bilateral contracts that are not securities. The likelihood it would do so is low. The result would fall into the same trap as above. Once an interest in enforcing becomes vested, it usually stays that way.

State legislation provides an alternative. States already regulate information in business. Consider DGCL Sec. 220. More should do so, and more explicitly, to create competing models of operations.

The above courses of action require collective action. A company can take matters into its own hands. The first place to start is any document under negotiation. The document should permit or prohibit certain uses of information by the company, and seek to address the hypotheticals listed above; companies should adjust the provisions based on context (an investor joining the board should have different rights and obligations than a vendor selling a small item).

More broadly, companies should consider using copyrights, particularly registered copyrights, to replace or augment NDA and confidentiality-style provisions. Doing so significantly reduces the cost of contracting by establishing default ownership principles and opting into a regime for enforcement, but still preserves the option to contract as the firm wishes. More importantly, it allows the company to share data freely, without undermining either its own innovation or its

market prospects. This element of copyright is superior to that of a bilateral or multilateral agreement – since information drives commerce, a tight agreement hurts word of mouth, or requires a lot of spending to maintain it.

Ideally, we would have a licensing regime where owners of information would rent it to consumers based on time. Say each hour would cost a token. The consumers could buy access. Prices would be set dynamically, similar to the institutional ad market, potentially with some constraints or free streams.

IV. Applications

In the meantime, the world has not implemented these ideas. Opportunity remains. I outline some ways to capture value from the current disorder below. Please read at your own risk.

Collateralized Loan Obligations ("CLOs") pool hundreds of loans together. They then sell bonds and equity securities in the pool. The most senior bonds have never had a default. Investors in the CLO receive information from the underlying borrowers.

Companies should use $1 million of their marketing budget to buy the senior bonds. Doing so may result in loss, but the market perceives the transaction to be about as safe as a certificate of deposit at a commercial bank. The companies would then get granular information on dozens of companies that updates over time. They could use the information to adjust their own sales efforts, both in targeting and content.

Business development companies provide a vehicle for pooling loans that retail investors can buy. In this sense, BDCs resemble a publicly traded CLO. BDCs typically maintain positions in 20-30 loans at a time. Investors often think of the price per share for BDC stock as a function of the BDC's net asset value ("NAV").

An investor can identify BDCs that trade below NAV, purchase a portion of the shares, and agitate for change at the entity, specifically with respect to how the BDC manages information. In some ways, this scenario offers the most pure example of the formula proposed by this article, where information is an off-balance sheet asset ignored by both investors and accounting. A BDC has the right, or could demand it (potentially in exchange for a modest discount in the interest rate), to collect information from all of its borrowers and sell it. The buyers for this type of information could be data warehouses or distributors like Bloomberg.

V. Regulation

The SEC recently requested comments on the regulation of providers of indexes, models, and templates for portfolios, including whether such providers and their products constitute investment advice.[21] In the RFC, the agency noted that it has the right to exempt parties from regulation. I propose that the agency issue a determination that exempts providers of information about markets from regulation as investment advisors unless they retain custody of third-party

[21] Securities and Exchange Commission, "Request for Comment on Certain Information Providers Acting as Investment Advisers", 17 CFR Parts 270 and 275 (Jun. 15, 2022) (hereinafter the "RFC").

assets. I believe that this approach would yield the best impact for the market and be most aligned with the SEC's goal of [x], because markets work best when they have access to information from multiple sources, and in turn facilitate the production of multiple sources of information when they work best.

In fact, regulating, or even threatening to regulate the dissemination of information can rapidly and permanently destabilize markets.[22] Whether intentionally or not, the RFC does exactly that. Moreover, the RFC targets an element that is the cornerstone of markets, namely the availability of prices. It does so under the guise of commenting about customized advice, but of course, investors are free to either a) reject this advice, or b) to put their money elsewhere. If they do not, it is not because they lack an understanding of the product or the advice – most investors would struggle to explain what a Treasury is, or how a stock differs from a bond, or how a variable annuity or a defined benefit pension works, or how put options function, or how they own their exchange-traded instruments, and yet the SEC has not proposed an additional layer of regulation on these products merely because some people do not understand them – but rather because of the implied guarantee of returns that regulation brings. That is, the repeated emphasis on the safety implies that such safety is available, not that all investments are risky, and encourages investors, including retail investors such as individuals, to allocate more to the market than they might if the SEC instead made the risk of loss that is an inalienable part of finance clear.

Consider Yahoo! Finance, a publicly available website.[23] Yahoo! Finance allows people – not just investors, and not just adults – to monitor the prices of stocks and some other instruments. The website automatically keeps track of the tickers a person enters, such as IBM, and then both stores them and makes suggestions of other companies like IBM. The website thus implicates both the customization component of the RFC, in that my watchlist and my recommendations, driven as they are by the tickers I picked, could differ from those of someone else, as well as the "advice" part, in that Yahoo Finance without question disseminates information about securities, including their prices, recent news, the performance on a periodic basis, the difference versus a benchmark such as the S&P index, and so on.

Yet Yahoo! Finance is one of the oldest websites still available on the internet, dating back to at least the late 1990s. To suggest that it should comply with registration requirements, as well as their implications for the company's capital structure (many lenders avoid any contact with registered entities, and some types of registration restrict the classes of stock a company can issue) would make no sense, because Yahoo! Finance has educated multiple generations on how the stock market works, and helped support an inflow of capital that over the last 80 years transformed "public markets" (mostly liquid mid and large cap equities traded on a US-based exchange) from a playground for the elite to a fairly open, liquid arena where enterprises compete for attention and capital. That same evolution may have caused the substantial improvement in the quality of life in the US.

The RFC does not propose to regulate Yahoo Finance, and instead concentrates on providers of information far less known to both the average citizen and the average investor,

[22] See Jared Malsin, "Turkey's Erdogan Fires Statistics Chief After Record Inflation", Wall St. J. (Jan. 29, 2022) (available at https://www.wsj.com/articles/turkeys-erdogan-fires-statistics-chief-after-record-inflation-11643456492).
[23] See https://finance.yahoo.com (last accessed January 27, 2023).

including possibly average securities lawyers. Yet there is no fundamental difference between Markit and Yahoo Finance, perhaps other than the cost of their services. Any attempt to regulate the former will necessarily create an overhang on the latter, and more importantly, the underlying market as a whole. Sure, some players may choose to ignore that overhang, but the SEC has not encouraged this type of interpretation in other areas of its activity.

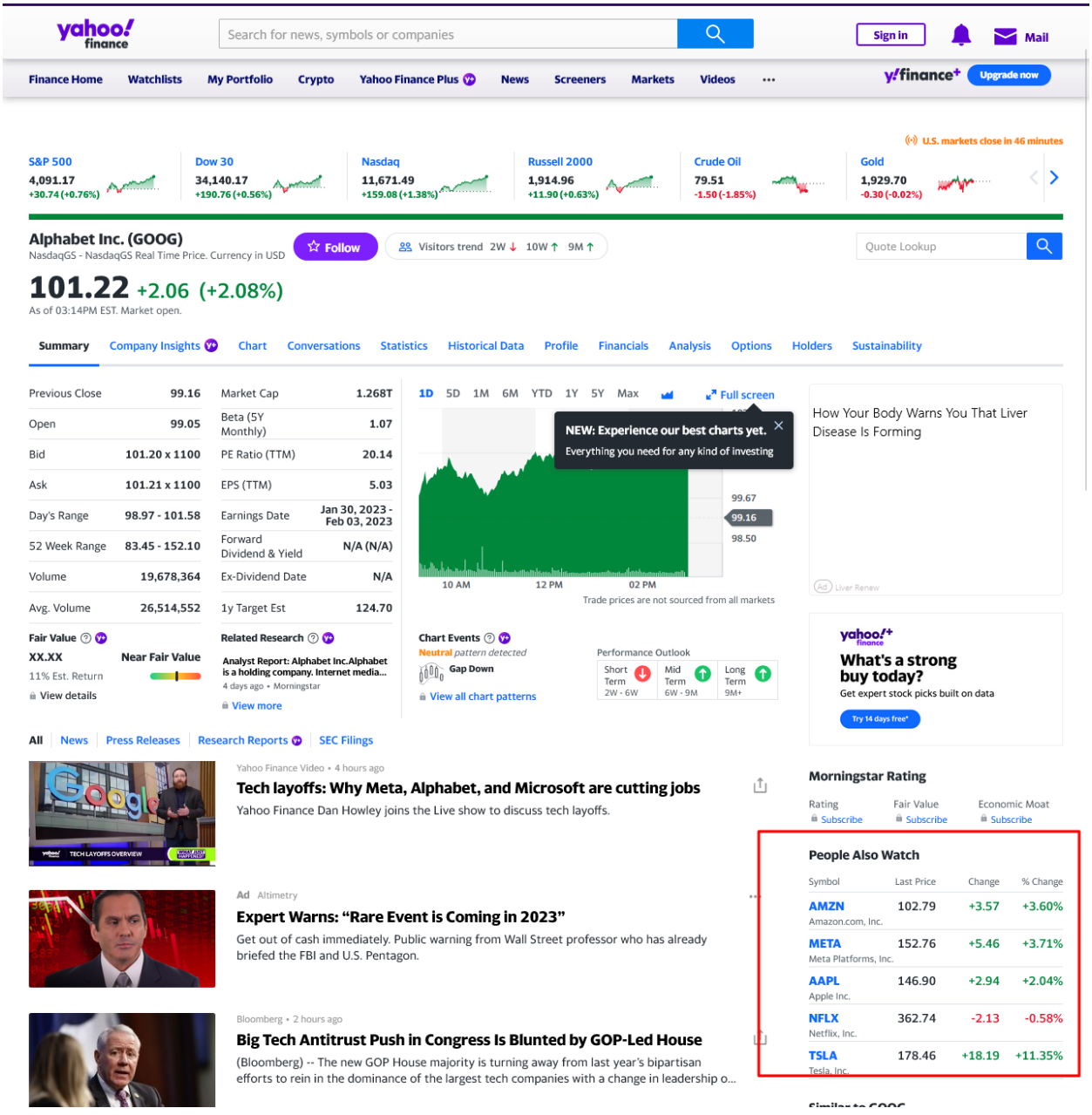

Figure 1: Yahoo! Finance includes customized recommendations based on portfolio composition.

The SEC could be attempting to address an issue with organizations whose intentions are less well-organized than Markit, or DBRS / Morningstar, or perhaps even nefarious. Yet the agency retains a toolkit for pursuing any such organizations if they actually trade that does not require regulating them providing opinions. The First Amendment to the Constitution does not apply only to opinions that are well-founded, or do not concern money; there is no carveout in [x] for promotional materials, or calculations that disfavor ESG.

The first parts of this paper articulate the value of information. In some ways, they merely say in words what a search on Yahoo Finance for "GOOG" will say in one number: that the value of information about commerce, measured as the market capitalization of Alphabet, Inc., is at least 5% of the US economy. Information has value. Regulating the publication and dissemination of this information puts a tax on such value, increasing its cost to the end market, and reducing its availability. In the absence of information, or with less information (even less bad information), markets will become more volatile, imposing a risk premium on investors from grandmothers to foundations. That is not the course of action the SEC should encourage, and accordingly, it should ensure that any party looking to publicize information about securities or other assets will not be subject to regulation solely because of such efforts.