

E-Commerce and the Undulating Distribution Channel

Appeared in: *Communications of the Association for Computing Machinery (CACM)*, Vol. 45,
No. 7. July 2002, pp. 89-95.

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ABSTRACT

Recent management literature is littered with unfulfilled predictions and inaccurate assessments of how electronic commerce will alter distribution channels. The following article adds clarity to our understanding of the role of e-commerce in restructuring channels by examining a variety of scenarios where collapse, shift, and expansion of channels has occurred. Classical and new theory is used to interpret weak, failed, and successful models employed by a wide variety of established firms and e-commerce startups.

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INTRODUCTION

The hype surrounding e-commerce can be both relentless and confusing. Of particular concern to managers is the impact of online commerce on a firm's distribution channels. Distribution channels have been viewed as a strategic asset and channel design has been recognized as a key to successful competition [1]. However many managers are perplexed when it comes to understanding the impact of online commerce on existing channels, determining where opportunities lie, and recognizing the threats that exist. This work brings to focus to a subset of issues related to the collapsing, shifting, and extending of distribution channels by presenting a series of examples that illustrate the forces behind the current channel dynamism.

VALUE GAPS AND DISINTERMEDIATION FAILURE

Pioneering theory in electronic commerce relied on classical economics [5] to illustrate incentives for the collapse of distribution channels, shortening the link between buyer and supplier [3]. This concept is referred to as disintermediation, or an elimination of one or more organizations from the distribution channel¹. The rise of overnight delivery services and the ubiquity of the Internet have offered increased opportunities for firms that originate products and services to sell directly to consumers. Many firms embraced the siren song of disintermediation, expecting customers to flock to lower-cost competitive products provided direct from the supplier. However several pioneers achieved dismal results stemming from a lack of understanding of the implications of removing key elements of the distribution channel.

Intermediaries offer multiple benefits including brand, distribution, coverage, management of product complexity, and selection at the point of purchase [1], [7]. While disintermediation can create savings if the aggregate cost of intermediaries is eliminated, such efforts can also create *value gaps* by removing critical value from the distribution channel. If the value added by the new, disintermediated channel does not equal or exceed the value added by the previous channel members, then a value gap will exist. Value gaps in critical competitive resources can doom an effort to failure.

[--- Insert Figure 1 About Here ---]

As an example, consider early efforts by Miami-based Sunburst Farms. Sunburst, a growing and import cooperative, was one of the first firms to take flower orders over the web. By using FedEx for next-day delivery of high-quality, fresh flowers, FlowerNet eliminated both the local floral shop and order-taking flower networks such as FTD. The advantage of this disintermediation was reflected in early pricing, with FlowerNet offering a dozen long-stemmed roses at roughly half the cost of more traditional competitors. It would seem that fresher flowers at a cheaper price would offer a compelling value proposition, however despite being a low-cost, early player; FlowerNet failed while better known rivals prospered. Competitors FTD.com and 1800Flowers have both posted profits, with the latter expecting half of 2002 sales to come from the web.

By disintermediating floral networks and local retailers, FlowerNet eliminated the strongest brands in the eyes of consumers. Brands were initially thought to be less significant online, particularly in commodity markets where easy comparison would focus attention on price [6]. However brand offers three resources vital for the online enterprise – brands 1) lower search costs, 2) proxy quality, and 3) inspire trust. Without brand awareness, FlowerNet's customers did not even know the firm existed, let alone whether or not the firm offered a quality product or if it could be trusted with a customer's credit card.

Failure in recognizing the valued role intermediaries can play in consumer education and managing product complexity was at the heart of the lackluster success of the direct-sale WebSaver annuity offered by Liberty Financial Cos. Annuities are typically sold through agents who take an average four to eight percent commission. By selling annuities over the Internet, Liberty hoped to reduce distribution and selling expenses to roughly one percent. The results yielded an attractive product – the firm's annuity offered rates some 100 basis points above many rivals and as a 'bits-based' product, overhead could stay low since there was no physical inventory to deal with. During the time of rollout, online brokerages were growing dramatically, demonstrating that consumers were willing to purchase financial instruments online. Since the WebSaver was a new product, Liberty recognized the importance of creating product awareness and building brand. The firm advertised the WebSaver on some of the

Internet's most popular destinations, and the product received positive press coverage. However, first year sales efforts were disappointingly low with less than twenty products sold.

What Liberty failed to realize is that the value added by the agent was critical and that this value had not been captured by the other ends of a collapsed distribution channel. While customers proved willing to trade stocks and mutual funds on their own, annuities represent a much more complex instrument. Before most consumers purchase an annuity, they need to be educated about the product and convinced of its value, however the shift to the online channel provided no such provision.

Firms may fail to realize that a value gap exists in a new channel because, while it is easy to quantify the savings from removing a channel partner, the benefits of less tangible yet critical assets may be overlooked. A value-focused audit comparing the benefits of elements in the old and new channels could have allowed managers to detect value gaps prior to deploying these failed efforts.

SHIFTING THE CHANNEL: CHANNEL PRESSURE

Electronic commerce presents opportunities to expand or shift elements of existing channels from the physical marketplace to the virtual marketplace [10]. However the bargaining power of buyers and suppliers is a critical force shaping industry competitiveness [9] and the presence of such power will remain vital in determining a firm's ability to exploit online markets. In particular, those manufacturers that have dominated traditional retail sales may be undermined by their earlier success. Their reliance on traditional outlets makes them susceptible to retailer pressure to curb online experimentation and limit deep discounting online (see Figure 2). Maintaining both channels also presents barriers to execution resulting if attempts to straddle multiple markets limit operational optimization.

As an example, consider the difficulties that Compaq has faced during the PC industry's increasing shift to online channels. In the first quarter of 1999, Compaq was forced to halt sales to deep-discount online retailers in response to pressure from its traditional (and much larger) retail base. Ironically, one of the vendors that Compaq halted sales

to was shopping.com, a deep-discounter at the time owned by Compaq. While Compaq has since largely controlled online deep discounting and has even taken steps to offer products direct to consumers, at the end of 2001 the firm was still reliant on partners for the majority of its business. As a publicly traded firm wedded to an old channel, Compaq could not afford to alienate vital resellers that had many substitute suppliers to turn to. This committed the firm to a slower transition away from partner vending, allowing its market share to be eroded as the direct-to-consumer segment grew. For contrast, consider that in 1995, direct-to-consumer leader Dell was #6, #7, and #5 in desktop, notebook, and workstation markets, but had secured the #1 position in all three markets by 2001. While web sales are not essential for the direct-to-consume model, they play a significant role. By 2001, Dell was doing so much business online that if Dell.com were a stand-alone company it would be in the Fortune 100.

Channel pressure from strong retailers such as Home Depot and Macy's has also caused firms such as Stanley Tools and Levi's to halt direct-to-consumer sales, rendering worthless each firm's substantial investment in their respective web sales efforts. Many suppliers now certify web merchants in part to ensure that margins among online retailers are comparable with offline counterparts. Similarly, Amazon.com has suffered at the hands of non-complaint suppliers as it has attempted to expand into consumer electronics. Many leading electronics manufacturers refused to authorize and supply the web retailer for fear of retaliation from larger brick-and-mortar chains, forcing Amazon to take costly steps to secure popular items from other retailers. As these examples illustrate, formulating e-commerce plans without considering the channel partner dynamic can result in financial loss, reputation damage, and weaker partner relationships.

Innovation and Channel Pressure

Christensen [4] has pointed out a persistent pattern of failure among sector-leading firms related to a blindness to opportunities in new markets. This blindness is created by a near exclusive focus on existing customers, coupled with a dismissal of low-profit but developing areas of business. However, channel pressure can also constrict dominant firms even if it is recognized that alternate channels present significant opportunities for growth. This limits experimentation, and when coupled with advances in technology, creates an environment ripe for disruptive players to strike at vulnerable, developing markets.

[--- Insert Figure 2 About Here ---]

Developments in digital audio represent one area in the midst of such disruptions. The MP3 format allows audio to be compressed at up to a 12:1 ratio and support for the format by major operating system manufacturers has secured hundreds of millions of users worldwide. For a time, 'MP3' had even displaced 'sex' as the most searched for term on the Internet.

The explosive growth of the format has prompted the development of portable, flash memory-based MP3 players. These specialized computing devices exhibit many qualities that make them more attractive than portable CD or tape players. First generation players stored roughly one hour of digital music, ran on a single AA battery and, unlike CDs and tapes, don't skip when jostled. These devices also benefit from Moore's Law, gaining more capacity at a lower cost over time. It's worth noting that the first such devices to hit the market were not offered by industry giant Sony, but by upstarts including computer peripheral maker Diamond Multimedia. Diamond (now part of SonicBlue) sold over 200,000 portable MP3 players in the first 10 months after introduction.

Sony's hesitancy lay not in a lack of technical expertise or a blindness to the growing acceptance of a new music standard, but rather in an internal pressure created from the firm's business lines. Sony is vertically integrated, providing both consumer electronics hardware and (as a record label) content. The digital distribution of MP3 files represented a channel that Sony Music did not wish to support due to piracy concerns and the potential adverse impact on recording sales. The 'Redbook' file standard that compact discs are based on is over twenty years old, has a huge installed base, and offers no copy protection, enabling the widespread illegal distribution of music over the Internet. SonicBlue (like many other firms offering MP3 hardware) does not suffer similar pressures and so has been free to establish early leadership in this new, developing market. The market for portable MP3 players has grown steadily and now includes MP3 format CD players. Total sales topped 2.4 million units in 2000, yet CNET reported that as of early 2002, none of the most popular portable MP3 players were provided by Sony. SonicBlue held three of the top five spots and has licensed products to firms such as Nike, for use in the latter's MP3 player.

While Sony has begun to respond to the seemingly unstoppable migration to new music formats, its early inaction has initially ceded standard-setting, partnerships, and market share leadership to others.

The constraint experienced by Compaq and Sony is typical of firms that are wedded to traditional channels that are undergoing a slow, but significant migration to new channels. The disruptions faced by these firms differ from those cited by Christensen because the ineffectiveness of response lies not in an inability to see the oncoming environmental change, but rather in the extent to which these firms are shackled to existing business models.

Shift to Auction Markets: Optimal Channel vs. Channel of Last Resort

The Internet's ability to bring together geographically diverse buyers and sellers has led to a rise in leveraging auction markets as distribution channels. However, the relative scarcity of items offered has significant impact on motivating auction participants as well as in creating competitive advantage for the auction operator. These issues are illustrated by contrasting liquidation auctions with market efficiency auctions.

Auctions such as those offered by Priceline are run as liquidation services that sell excess commodity inventory at below-market rates. The bulk of Priceline's revenues come from travel – a service that is low in scarcity and high in substitutes. Liquidation markets exist because suppliers experience operations inefficiencies in areas such as production, forecasting, and distribution. When such circumstances are present, the supplier's long-term priority is to remove margin-deteriorating inefficiencies. As such, growth in liquidation auctions will be limited as suppliers move first to lower any surplus using techniques such as ERP, supply chain, and yield management. When faced with the prospect of giving up customer contact and a percentage of revenue to a third party, suppliers may also be motivated to sell excess inventory through their own e-commerce efforts². For these reasons, suppliers may always view third-party liquidation services as *markets of last resort*.

[--- Insert Figure 3 About Here ---]

For providers of rare products or services with exclusive or limited access however, auction models present a compelling alternative to traditional channels. Indeed, these markets may be viewed by both suppliers and buyers as *markets of first choice*. Suppliers of rare goods seek large markets because more buyers will bid prices higher. Similarly, buyers seeking rare goods first visit the largest market to maximize their likelihood of finding the item sought. This virtuous cycle creates the demand-side economies of scale of network effects.

eBay's success provides a stunning example of the strength of these benefits. While revenues at Priceline fell 5% in 2001, eBay grew 74%, even though it is the largest player in its field. The consistently profitable firm holds roughly 80 percent of the US online auction market for consumer goods, despite the fact that strong brands like Yahoo and Amazon have offered competing services with lower fees. eBay has maintained its network advantage via an online rating system for evaluating auction participants. The rating system has helped lower the risk premium associated with doing business on eBay and it creates a switching costs, strengthened over time, in that participants who leave must re-create their reputation anew at another service. The success of eBay's market efficiency auctions for collectables has created a critical mass of consumers that has allowed the firm to leverage this client base to expand into other markets. Many items now found on eBay are not at all scarce. By early 2002, eBay boasted 38 million buyers and was the leading Internet destination not only for collectibles, but also for autos and auto parts, computers, and photo equipment. Suppliers seeking to tap into the firm's customer base include IBM (eBay's largest seller) and even Priceline. This has allowed the firm to expand beyond market efficiency auctions and into fixed-price purchases, payment services, advertising, and liquidation auctions.

Firms hoping to create market efficiency auctions as alternatives to existing market mechanisms must consider whether the new system can match and exceed the aggregate benefits offered by the traditional way of doing business. At first glance, the market for initial public offerings (IPOs) in the U.S. would seem a likely candidate for market efficiency auctions. In this case, the firm going public is the supplier and the investors in the firm's stock are the buyers. In the traditional system, investment banks that take a firm public charge fees (typically 7%) and regularly underprice the issue to ensure a sellout, both of which reduce the amount of capital that a firm raises in an IPO. In a hot market for IPOs (regardless of its rationality), the gap between the offer price and the price that the market is willing to pay for a new issue can grow quite large. Table 1 demonstrates this gap³. This market

inefficiency is of great concern to newly public firms because it translates into financing raised at a price below what the market is willing to pay. Thus, firms have less cash to meet the demands of a market that values them at significantly higher premiums above the IPO. On the buy-side, small investors are locked out of shares at the offer price. Initial shares are offered to institutional investors (e.g. pensions & mutual fund managers) and large clients who regularly flip shares during the run-up to pocket a fast profit.

[--- Insert Table 1 About Here ---]

OpenIPO was introduced by the firm W.R. Hambrecht to correct the inefficiency of the current system.

Hambrecht's OpenIPO charges only 4% underwriting fees while using a modified Vickrey auction to set the price of a new issue⁴. The goal is to provide all investors a fair shot at IPO shares, and companies with a better way to raise more cash while creating a more stable investor base.

Unfortunately, clients have not flocked to OpenIPO. The system has handled roughly half-a-dozen IPOs between 1999 and 2001. Hambrecht's limited appeal is related in part to value gaps that exist between the traditional method of going public and OpenIPO. There is concern that auctions price issues based on hype rather than the due diligence offered by traditional investment banks. OpenIPO has also been criticized for lacking the solid and diverse customer base needed to accurately set the offer price at market equilibrium. In at least two issues handled through OpenIPO, Peet's Coffee and Tea and Andover.net, share prices still jumped more than two-fold when hitting the market immediately after the IPO. The relatively smaller issues handled through OpenIPO tend to attract less analyst coverage, yet coverage is critical for creating the awareness necessary to provide continued liquidity for the stock. Firms that are taken public by highly regarded Wall Street firms also benefit from a prestige factor and a first-day price run-up may be seen as a marketing event that further raises awareness of a firm. As in disintermediation, the shift to auctions is appealing only if new efforts can capture and exceed the value offered by traditional channels. Without clear moves to bridge the value gap, the appeal of OpenIPO may be limited.

LENGTHENING THE CHANNEL: CHANNEL EXTENDING INTERMEDIARIES

While e-commerce has been thought of as a catalyst for the collapsing and shifting of channels, a new category of firm is using technology to lengthen distribution channels. These *channel extending intermediaries* (CEIs) insert themselves between existing elements, aggregating buyers and suppliers into new markets and leveraging opportunities to add value that address weaknesses in traditional systems. Buyers see incentives to join CEI networks when, for example, traditional alternatives offer high customer search and switching costs, or low customer satisfaction [2], [11].

[--- Insert Figure 4 About Here ---]

As an example of CEIs, consider mutual fund supermarkets [3]. Launched in 1992, Schwab's OneSource leveraged technology to establish the first consumer marketplace for no-load mutual funds. With OneSource, Schwab moved from a firm that offered no actively managed funds to one that today makes available thousands of funds from hundreds of firms. The addition of a web front-end allowed Schwab customers to rapidly sift through a myriad of choices, narrowing in on key criteria such as performance. Switching costs between fund families have been virtually eliminated, as assets can be instantly shifted among fund companies as if users were buying or selling stock.

Supplier participants in markets created by channel extending intermediaries typically engage in a margin for volume exchange – trading a portion of their revenues for access to the CEI's customer base. In the case of mutual fund networks, supplier fund companies offer the fund network a percentage of their management fee. However, this "Devil's Bargain" may also hurt suppliers by further commoditizing supplier products, weakening supplier brand, shifting the switching cost asset to the CEI, and displacing the supplier as the primary interface with the customer. This last item may be particularly important, as customer contact is vital in creating a defensible data asset and in experimentation.

CEIs and Supplier Motivation

Why would suppliers be motivated to participate in a CEI if they are likely to see competition increase while their competitive assets are eroded? Indeed, this is the question many firms asked when rejecting overtures from third-party business-to-business exchanges. Third-party B2B exchanges were a venture capital darling in 1999, but the vast majority of these exchanges have collapsed due to an inability to create enough participation to generate a liquid market.

Online markets for new autos present another example of the difficulty in balancing value delivery and buyer-supplier motivation when developing a CEI. Customers have flocked to the Internet for car shopping advice, with over 60% of US auto buyers surfing the web for information prior to visiting a dealer. However, many car sales CEIs that match car buyers with low-cost, no-haggle dealer quotes have struggled. Online shopping presents a value gap in that a dealer remains critical to obtaining a trade-in assessment of a car. Search costs are not saved if a customer feels it necessary to verify a trade-in estimate by visiting additional dealers. Many auto sites have also sought to provide access to financing, creating channel pressure with dealers who are reluctant to lose high margin finance business to web partners. Finally, auto sites suffer from a free-rider problem in that customers can get a quote online and use this to shop outside the network.

Schwab's success in attracting a critical mass of suppliers to OneSource is the result of a number of factors. As the largest discount brokerage firm, Schwab offered fund firms access to a substantial customer base. The mutual fund industry is also highly fragmented, thus limiting the concentration of supplier power. Also, the uncertainty of returns within a fund category promotes a tolerance of comparison among rival funds. However as the examples above illustrate, the favorable characteristics that allowed Schwab to build the wildly successful OneSource may be difficult for many would-be CEIs to replicate.

Threats to Channel Extending Intermediaries

Not only can it be difficult to craft a successful CEI, but ubiquity of the Internet and the relentlessly falling price of computing make it easier for new entrants to threaten established channel extending intermediaries. Credible threats to CEIs can arise from suppliers forward integrating or from firms that can leverage existing distribution channels to access customers. Fidelity Investments has created a rival fund network by moving forward in the value chain, opening up its customer base to competing funds that are willing to share their management fees. Auto manufacturers have also moved forward to launch sites that compete with online auto-sales networks. In many cases, forward moving suppliers can leverage a significant pool of assets including established market presence, strong brands, access to capital, more comprehensive inventory knowledge, and loyal customer bases. The Internet has also created virtual distribution channels at customer aggregation points and these assets may be extremely valuable to firms that control them. For example, Microsoft has leveraged the firm's various properties – MSN, interactive TV services, and the Internet Explorer browser – in promoting its CarPoint dealer network and other e-commerce properties.

Although rival networks can be easily launched, early movers gain a tremendous advantage as market makers. While research has challenged the notion of the first mover advantage under certain conditions [12], for channel extending intermediaries the first-mover advantage is critical in establishing a dominant network. The viability of a new market is largely based upon network effects. In the case of CEIs, more customers attract more suppliers and more suppliers attract more customers. This positive feedback loop can be extremely difficult for new entrants to surmount. Early movers also benefit from establishing brand, pioneering standards, creating switching costs, and locking in suppliers with exclusive contracts [8]. Although large suppliers (e.g. Fidelity) and those controlling customer access routes (e.g. Microsoft) may be able to create sustainable alternative markets, early movers with large market share such as Schwab and Auto-by-Tel have continued to maintain their lead position based in-part on the increasing returns of their large networks. For example, six years after the deployment of OneSource and despite having its model copied by many competitors, Schwab's fund network remained over three times larger than its nearest rival. And despite the weaknesses of auto sales CEIs, web pioneer Auto-By-Tel is nearly twice as large as rival CarPoint and even managed an operating profit in 2001. The threat to channel extending intermediaries posed by forward integration and firms with distribution channels is legitimate and should be taken seriously,

however given the benefit of network externalities, a substantial early market share lead may be particularly difficult to displace.

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The extent of the collapse of distribution channels brought about by the advent of the Internet appears to have been over estimated. Instead we are faced with an undulating distribution channel that can contract, shift into cyberspace, or expand depending on the complex interaction of industry players, value delivery, product offerings and characteristics, and market power. An understanding of the interplay of these disparate forces is vital for those seeking to determine how e-commerce will impact a firm and its industry.

ENDNOTES

¹ This is not to be confused with the much more common phenomenon of internal disintermediation, the removal of layers within an organization that exist between a customer and a product or service.

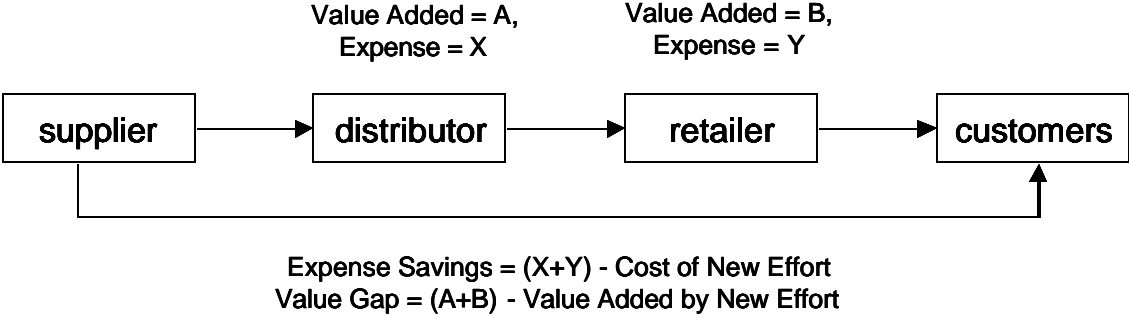
² Most major airlines allow consumers to sign-up for e-mails that offer discounts on last minute flights, and major airlines have also partnered to form Hotwire, a Priceline competitor.

³ This example is offered as a discussion of problems in an attempted market-efficiency auction where high demand creates a pricing inefficiency. This is not to state that investing in popular IPOs is a recommended strategy. On the contrary, many studies have demonstrated that investing in IPOs is highly risky.

⁴ In the original Vickrey format, described by Nobel Laureate William Vickrey, (Vickrey, William.

“Counterspeculation, Auctions, and Competitive Field Tenders,” *Journal of Finance*, Vol. 16, March 1961, pp. 8-37.) the highest bidder gets to buy the item, but only pays the next highest price offered. In the W.R. Hambrecht mechanism, all high-bidders for an IPO win, but all will pay the price of the lowest high bidder ensuring a sell-out.

Figure 1: Value Gaps and Expense Savings



While disintermediation can create expense savings if the aggregate cost of intermediaries is eliminated, such efforts can also create value gaps by removing critical value-adding resources from the distribution channel. If the value added by the new channel does not equal or exceed the value offered by the traditional channel, then a value gap will exist. Value gaps in critical competitive resources can doom an effort to failure.

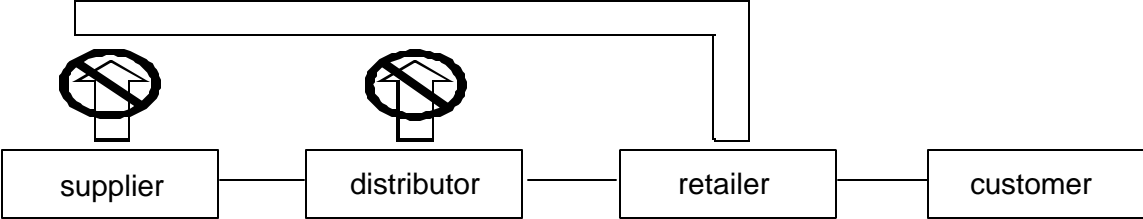
Figure 2: Channel Pressure

Firms less reliant on powerful, traditional channel partners are free to experiment with direct sales or work with new intermediaries that serve the online market

Online Channels



Traditional Channels



Suppliers and distributors heavily reliant on traditional channels with powerful partners may find their ability to expand and innovate with online channels is stifled.

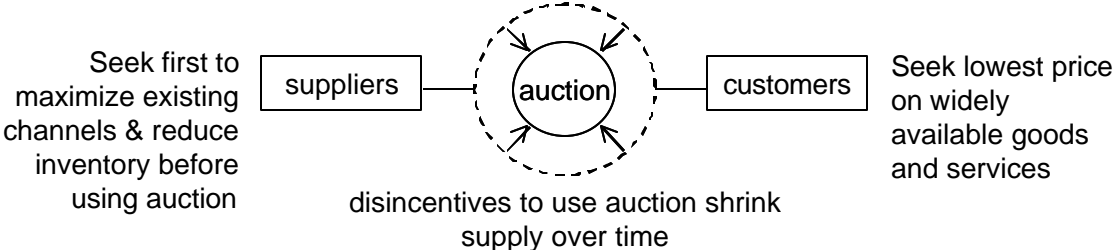
Table 1: Market Inefficiencies in the U.S. Underwriting Industry

Company	Date	Shares Underwritten	Initial Offer Price	First Day Close Share Price	Difference	Percent Undervalued
JetBlue	4/12/2002	5,500,000	\$27	\$45.00	\$ 99,000,000	67%
PayPal	2/15/2002	5,400,000	\$13	\$20.01	\$ 37,854,000	54%
NetScreen Technologies	12/11/2001	10,000,000	\$16	\$23.72	\$ 77,200,000	48%
Magma Design Automation	11/19/2001	4,850,000	\$13	\$18.99	\$ 29,051,500	46%
Global Power Equipment	5/17/2001	7,350,000	\$20	\$31.45	\$ 84,157,500	57%
Simplex Solutions	5/1/2001	4,000,000	\$12	\$21.20	\$ 36,800,000	77%

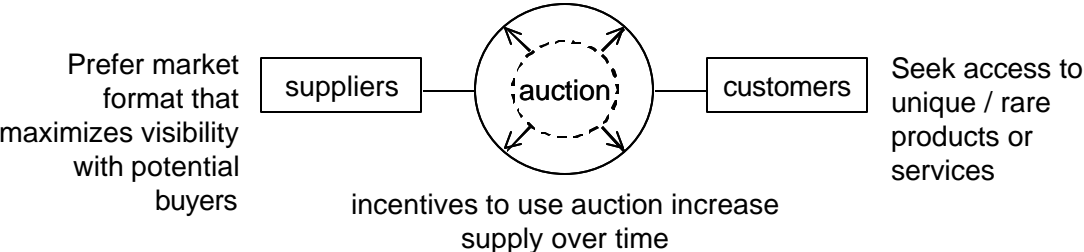
Market inefficiencies in the IPO process result in less cash generated for newly public firms. Note that the inefficiencies depicted above occurred in a relatively poor performing market and that such inefficiencies are larger and more commonplace in bull markets. For example, from 1999 to 2000, a total of 194 IPOs doubled in their first day of trading.

Figure 3: Auctions of Last Resort and First Choice

Liquidation Auctions:



Market Efficiency Auctions:

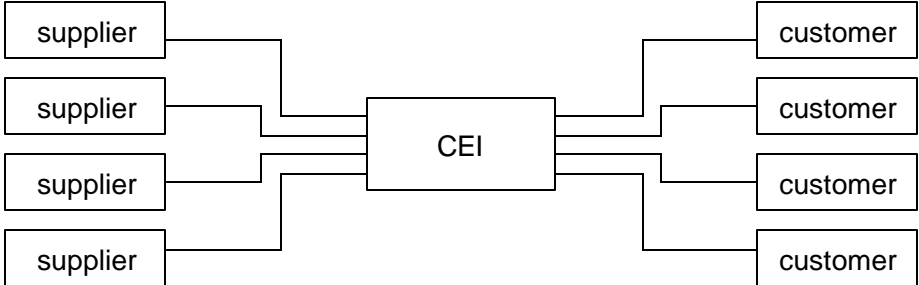


Suppliers see liquidation auctions as a market of last resort for the sale of overstock inventory. The supplier's long-term incentive is to reduce excess so as to avoid the need for auction. By contrast, market efficiency auctions offer unique or rare products or services to a customer base that might not otherwise have access to such goods, creating an attractant for both constituencies.

Figure 4: Channel Extending Intermediaries

Channel Extending Intermediaries (CEI)

Extend channel by adding value: e.g. lowering customer search & switching costs, increasing customer satisfaction.



Suppliers

Trade margin for volume but lose customer contact & switching cost asset, risk brand weakening & commoditization of offerings

Channel Extending Intermediaries

Wield new power by consolidating customers & suppliers. Become the primary interface with consumers. Gain brand & switching cost asset. Benefit from network effects.

Customers

Transactions are initiated through the Channel Extending Intermediary

Threats to Channel Extending Intermediaries

Forward integration from suppliers or from firms that can consolidate customers.

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