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ENTREPRENEURIAL OPPORTUNITIES, IMPLICIT CONTRACTS, AND MARKET MAKING FOR COMPLEX CONSUMER GOODS

ANDREW CHRISTOPHER GODLEY*

Centre for Entrepreneurship, Henley Business School, University of Reading, Reading, U.K.

This article extends the theory of entrepreneurial opportunity exploitation, outlining how under certain conditions, opportunity exploitation is dependent on market making innovations. Where adverse selection and moral hazard characterize markets, consumers are likely to withdraw regardless of product quality. In order to overcome consumer resistance, entrepreneurs must signal credible commitments. But because consumers purchase without fully specifying requirements, entrepreneurs' commitments take the partial form of implicit contracts, creating strong mutual commitments to repeated transactions. These commitments enable novel markets to function, but introduce additional costs. This article illustrates the theory with the historic case of Singer in sewing machines. © 2013 The Author. Strategic Entrepreneurship Journal published by John Wiley & Sons Ltd on behalf of Strategic Management Society.

INTRODUCTION: ENTREPRENEURIAL OPPORTUNITIES AND MARKET MAKING

Scholarly research in the domain of entrepreneurship research has increased substantially in the last decade or so, since Shane and Venkataraman's (2000) call for researchers to identify from where entrepreneurial opportunities come. Much of this recent conceptual development has focused on the creation, discovery, and development of entrepreneurial opportunities. Relatively few articles have focused on better understanding the concept of entrepreneurial exploitation (Short *et al*., 2010). Indeed, Short *et al*. (2010) show that where opportunity exploitation is a focus, it is largely on associated personality characteristics not processes (important exceptions would include Sarasan, Dean and Dillard, 2006; Lee, Peng, and Barney, 2007; Witt, 2007; Choi, Levesque, and Shepherd, 2008; Wood and McKinley, 2010; Schindehutte and Morris, 2009). Such focus on developing the separate conceptual elements of entrepreneurial opportunities is understandable, as the concept has matured, but it should be remembered that the 'only reliable confirmation that a previously unseen or unknown valuable opportunity in fact exists occurs when a market has been created for the new item' (Eckhardt and Shane, 2003: 339). Market creation is, therefore, ultimately central to any empirical assessment of any aspect of entrepreneurial opportunities. Yet the process of market making has received relatively little attention in the entrepreneurship literature in recent years.

This omission from the scholarly literature is doubly curious because while so much of the empirical literature has focused on high technology entrants, for many of these entrepreneurs, their primary concern is not new technology creation, but the uncertainty surrounding market reception (Christensen, 1997). The seeming relative absence of much consideration in the entrepreneurial

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*Correspondence to: Andrew Godley, Centre for Entrepreneurship, Henley Business School, University of Reading, Reading RG6 5UD, U.K. E-mail: a.c.godley@henley.reading.ac.uk

opportunity literature of market reception may have arisen because of the widespread assumption that consumer behavior is economically 'rational.' Yet in his presidential address to the American Economics Association, Daniel McFadden, Nobel Prize-winning behavioral economist, highlighted one important conclusion of years of behavioral economics research, that this textbook assumption may need to be moderated, '*Homo economicus* . . . is a rare species' (McFadden, 2006: 10). Experimental data from behavioral economics research, supported by similar outcomes from cognitive psychology and biology researchers, suggests that consumers do not always follow conventional norms of self-interest and rationality. In particular, experimental data suggest that consumers are most unlikely to show textbook style 'rationality' in the face of novelty (McFadden, 2006). An exaggerated awareness among consumers of the risk of adverse selection on outcomes under conditions of novelty means there is an increased risk of consumer withdrawal.

Consumer overreaction to novelty, therefore, has a direct bearing on the domain of entrepreneurship. In particular, this implies that entrepreneurs who have created new products and services may need to go beyond product innovation to market making innovations to secure successful market reception. This article, therefore, seeks to separate product innovation from market making innovation and show how, in certain markets, successful entrepreneurial entry depends on market making innovation as well as successful product development.

The article proceeds by developing some of the insights of information economics. These have been applied successfully to other economic contexts, but not to entrepreneurship (Stiglitz, 2000). The article begins by describing the uneven impact of information asymmetries, notably the effects of moral hazard and adverse selection on different kinds of consumer goods markets, showing why implicit contracts between producers and consumers have emerged as a solution to overcome the threat of consumer withdrawal. The article then explains why this poses particular problems for new entrants in such markets, and why entrepreneurs need to give additional consideration to market making innovations. This, in turn, has important implications for pricing strategies and the provision of market support services. The article then goes on to illustrate the existence of implicit contracts, showing how they dominated the structure of the market for the world's first mass produced, mass marketed, complex, and high tech consumer durable, the sewing machine.

SETTING OUT THE PROBLEM OF INFORMATION ASYMMETRIES: MORAL HAZARD AND ADVERSE SELECTION EFFECTS IN CONSUMER MARKETS

The transactional relationship under consideration is between entrepreneurial firms and consumers; firms sell novel products to consumers, consumers buy from firms. Under such conditions of uncertainty, consumer purchases are decisions made on the basis of crude estimates of expected future utility.[1] There is a risk such estimates may turn out to be wildly inaccurate. Consumers, in fact, acquire only sufficient information to make an informed judgment about the utility of a purchased novel product at some point after formal completion, meaning these transactions share characteristics of incomplete, open-ended contracts and their associated risks. Producers may seek to disseminate information to overcome such risks, but consumers are unlikely to take such information at face value, as producers may be less than fully transparent in order to complete the transaction. In this setting, consumers face similar adverse selection effects as bankers facing would-be borrowers. Simply altering the price—banks increasing interest rates to potential borrowers or consumers insisting on lower prices from producers—does not screen out the bad risks (Stiglitz and Weiss, 1981; Grossman and Hart, 1986; Godley and Ross, 1996; Stiglitz, 2000).

This is not the case for all novel consumer goods. For many new products, consumers are well placed to be able to test the firm's claims because for many products ('search goods' in Nelson's terminology (Nelson, 1974)), consumers can sample or test goods before purchase. Nelson differentiated search goods from others—which he called 'experience goods'—that are sufficiently complex in nature and for which consumers are unable to gain sufficient information

[1] For the purposes of theory building, I am ignoring state intervention, warranty provision, comparison Web sites or other institutional innovations to overcome the threat of opportunistic behavior in open-ended contracts in this section (although see Discussion and Conclusion below). Equally the focus is on goods rather than services, where consumption is mostly simultaneous with production, and, so, where transactions are mostly spot rather than sharing the open-ended characteristics emphasized here.

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prior to purchase,. These transactions do possess similar characteristics to open-ended, incomplete contracts because these novel products are taken on in faith by consumers. It is only through actually experiencing them after purchase that the consumer is genuinely able to judge whether the product has met *ex ante* expectations. For consumers likely to exaggerate the risks of adverse selection under conditions of uncertainty, there is a greater risk of withdrawal from such novel and complex experience goods.

For some quasi open-ended transactions, there is also the additional risk of moral hazard, where consumers face not only the risk of adverse selection, but vulnerability to producer opportunism. This leads to what Akerlof described as the 'lemons' problem (Akerlof, 1970). In markets for experience goods characterized by information asymmetry, where the seller possesses more information than the buyer and where the buyer suspects that the seller may act opportunistically, the buyer will insist on a discount in the price to reflect the cost of insuring against the transaction going wrong or of the purchase turning into a 'lemon' (the American slang expression for dud cars). In some markets, like secondhand cars, this reduction in price may be easily absorbed or passed on to suppliers. But in markets characterized by very high sunk costs, producers may not be able to pay the consumers' implicit insurance premiums. To overcome such a strong propensity to consumer withdrawal producers must invest in developing communication channels not only to disseminate relevant information about the product itself, but also to convince consumers of their trustworthiness. The penalty of continued consumer suspicion of producer opportunistic behavior is lower prices.

The threat of moral hazard varies for different kinds of experience goods, however. For example, there are several kinds of experience goods for which demand is repeat demand—the products are consumed, typically shortly after purchase, leading to further repeat purchases—subject to some satisfaction threshold being met. Consumers here are neither able to consume at the point of purchase (like most services) nor to sample before purchase (like search goods), but they are able to benefit from the information generated by previous purchases. The risk of novelty and the dependence on the producer's promise is not eradicated, but it is modified to one where producers commit to ensure future purchases are consistent with previous ones.

Table 1. Moral hazard and adverse selection and the risk of consumer withdrawal

+	2. Open-ended incomplete transactions	4. Novel complex consumer durables
Moral hazard	1. Novel search goods	3. Complex nondurables (repeat goods)
–	– Adverse selection +	

For novel durable goods, however, consumers are more dependent on an entrepreneur's promise—first because they are not repeat purchases (and so they possess no information from previous purchases), but also because once a durable good has been purchased, consumers have less incentive to continue sampling and testing alternatives. Consumer durables like computers or smart phones might be typical of these products (e.g., Kay, 1993). Furthermore, consumer durables are typically more expensive and treated as quasi investment goods. The possibility of a bad purchase, therefore, represents a higher long-term risk to consumer utility because of the time required before the expense can be fully amortized and the product replaced.

Table 1 summarizes this first step of setting out the problem posed by information asymmetries. It illustrates that many transactions for novel goods and services are unaffected by either moral hazard or adverse selection effects, and so face minimal risk of consumer withdrawal. For example, when both adverse selection and moral hazard effects are low, in Box 1 (with novel search goods like clothing, perhaps), consumers are sufficiently informed to pursue their own self-interest and fully commit to transactions. In Box 2, low product complexity means minimal risk of adverse selection effects, but the open-ended nature of the contract exposes consumers to the risk of moral hazard. Entrepreneurial entry into these types of markets (domestic construction services, perhaps) would have to devise contractual strategies to avoid consumers insisting on discounts to insure against poor quality (through stage payments, perhaps).

In some markets for complex experience goods, consumers face the risk of adverse selection (it is too complex for them know *ex ante* whether the product will meet expectations), but consumption is so coincident with purchase that there is little risk of moral hazard. These Box 3 markets might be composed of

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nondurable goods and services. In order to overcome the risk of complexity, entrepreneurs may seek to build incrementally on existing products and services and, therefore, enable consumers to draw comparisons either from their own or others' previous transactions. Or for more complex goods, specialist intermediaries might emerge to offer authoritative information.

As a set of transactions relating to repeat goods, the threat of producer opportunism facing consumers is restricted to the secondary threat of the price-quality mix changing in favor of producer interests at some later stage. This has implications for firm strategic behavior rather than strategies of entrepreneurial entry, which I will return to later. But for present purposes, the important result from Table 1 is to identify that for entrepreneurs engaged in Box 4 type markets, where entrepreneurs are introducing novel, complex, nonincremental durable goods, their target market possesses little relevant information and has little prospect of independently accessing such information so as to make an informed decision. There is, therefore, a high risk of adverse selection effects influencing consumer reception. Moreover, because consumers have to pay up front but will have open-ended requirements, there is a strong risk of moral hazard. Such markets, often for high-tech durable products with high intellectual property content for instance, are a common feature of the entrepreneurship literature (Dushnitsky and Lavie, 2010; Enders *et al*, 2008; Pollock, Fund, and Baker, 2009; Woolley, 2010). Yet focusing on the characteristics of such markets from the consumer's perspective should lead to the conclusion that without appropriate market making innovations, these are markets with a high risk of consumer withdrawal and so high rates of entrepreneurial failure *regardless of the merits of the novel product itself*.

ENTREPRENEURIAL RESPONSE—MARKET MAKING INNOVATION AND IMPLICIT CONTRACTS

Nelson's (1974) focus on the different properties of consumer goods is helpful because it indicates how producers might respond with different advertising strategies when engaging with risk-averse consumers in transactions characterized by varying degrees of information asymmetries. While this was an advance on Akerlof (who, as Stiglitz [2000] reminds us, ignored the desire of producers to supply more information), for the purposes of this article, Nelson's (1974) typology does not go far enough in explaining the difficulties facing entrepreneurs in responding to such information asymmetries. Indeed there is nothing in Nelson's (1974) analysis that necessarily leads to an entrepreneur having to invest in a market making response; alternative institutional solutions could easily be envisaged (standards, regulations, independent arbiters, *etc*. (Langlois, 2003; Kleinschmidt, 2010). To understand why in most consumer goods markets it is producers who reduce the risk of consumer withdrawal from the threats of adverse selection and moral hazard rather than any other actor, the complexities associated with consumer demand specification need to be explained.

OVERCOMING COSTLY PRE-PURCHASE SPECIFICATION WITH CREDIBLE COMMITMENTS AND IMPLICIT CONTRACTS

Another way to conceptualize Nelson's (1974) demarcation between experience and search goods is to understand that when consumers are unable to specify their requirements pre-purchase, they will be able to make an informed judgment of its utility only after experiencing it. It is this inability to specify requirements pre-purchase that so powerfully demarcates consumer demand from business demand for novel, complex products. Businesses typically have much greater understandings of the specification required for any particular new product required, so business-to-business (B2B) markets are often characterized by tendering and other procurement techniques to ensure better matches between buyer and seller.[2]

In the absence of clear specification from consumers, producers engage in guesswork to more exactly identify what it is consumers desire but are unable to articulate. Such guesswork may be informed by market research, but in the end, producers have to opt for a particular product or design with less than perfect information about consumer desires (Orme,

[2] Obviously these are points on a spectrum rather than separate categories of behavior. IBM's position of dominance in the business machine market for decades was based on the tagline, 'No one was ever fired for buying IBM,' indicating that where information asymmetries arise in B2B markets, a similar pattern of behavior to that described here for consumer markets emerges.

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2006). An entrepreneur making investment decisions in the face of such an absence of consumer specifications is what Casson describes as exercising entrepreneurial judgment (see Casson, 1982, 2005, and Casson and Godley, 2005, for a historical application). Having made their decision, producers then have to communicate with their target audience about their novel product. But given that the real underlying consumer demand factors remain inarticulate, producers engage in communicating tacit as well as nontacit information with consumers, through advertising, sponsorship, public relations, and so on, with the aim that such investments in intangible information will lead consumers to recognize congruence between their own inarticulate desires and the offering from the firm.

The need for innovation in market making is, therefore, the outcome not of information asymmetries *per se*, but rather the evidently very high costs to consumers of articulating more clearly their required specification pre-purchase. If producers found market making more costly, then consumers would have a stronger incentive to specify their own requirements and then invest in a search for the most suitable providers. Such a market, like most B2B markets, would involve much reduced marketing costs, but much greater specification and search costs. Given the expense of market making innovations like brands and reputations, it is reasonable to infer that consumers find it very costly to engage in any rigorous specification processes. Firms, therefore, provide sufficient relevant information to consumers more cheaply than consumers can discover it themselves.[3] Moreover, it is firms that typically have the stronger incentive to resolve the risk of consumer withdrawal rather than consumers, because firms' investments in sunk costs associated with production are significantly greater than any individual consumer's search cost. When consumers typically do invest in pre-purchase specification (for example in self-designed house construction), there is much less incentive for producers to invest in brand creation (house builders, to continue the example, merely tender bids on price and quality).

To summarize, in some consumer goods sectors (typically complex durable goods) where repeat purchases are rare, amortization costs are high, and consumers find pre-purchase specification very costly, producers face the strongest incentive to provide product-specific, intangible information to consumers. If consumers believe this intangible information, the risks and, hence, the costs to contracting are reduced.

In intermediate product markets exhibiting high transaction costs, firms face the alternative strategy of internalizing the relevant economic activity (Coase, 1937; Williamson, 1981, 1985; Buckley and Casson, 1976). But firms cannot internalize consumers. There have to be alternative institutional solutions to such high risk-related transaction costs in consumer goods markets, and it is entrepreneurs who face the strongest incentive to find solutions.

Such market making solutions involve, by definition, the ability to meet a consumer's inarticulate and open-ended requirements, and they require a firm to go beyond the explicit contract of exchange—transferring the rights to a good for a given price—to an implicit contract, where the producer communicates to the consumer that it will meet all their product-associated demands, whether understood at the moment of transaction or not, whether codified or not, and until some point in the future where consumer uncertainty falls away approximately to zero. Such a commitment to unspecified consumer requirements, therefore, represents unfunded guarantees to future expectations. Implicit contracts are costly but necessary market making innovations.

Okun defined implicit contracts as 'invisible handshakes' or 'arrangements that are not legally binding but that give both sides incentives to maintain the relationship' (1981: 49–50). Substantial anecdotal or partial evidence of the pervasiveness of implicit contracts can be drawn from a variety of contexts where relationship is preferred to contract. Examples occur in the business history literature on complex infrastructure projects (Mata, 2008) or in the international management literature on German and Japanese corporate governance systems (Jenkinson and Mayer, 1992), or in the cross-cultural management literature on Chinese managers' decision making (Graham and Lam, 2003), to list but a few.

The economic literature on implicit contracts is, however, clear that markets so characterized are able to function only in the presence of supportive social norms. The most significant norm to be observed in experimental data is reciprocity (Axelrod, 1984; Fehr and Gachter, 2000; Gachter and Herrmann, 2009). Reciprocity's importance in the behavioral economics literature is that it enables markets

[3] Firms obviously gain from economies in pooling common characteristics of consumer demand specifications.

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characterized by implicit contracts to function. It overcomes what Avner Greif has called 'the fundamental problem of exchange' (Greif, 1994, 2000). But this implies that a transactional relationship between entrepreneurs and consumers based on implicit contracts exhibits more similarities with a prisoner's dilemma view of the world than the conventional understanding of price-taking free markets. Credible and long-term commitments to repeated exchange, therefore, introduce significant constraints on both parties' freedom of action.

Implicit contracts have been particularly influential in the economics of the labor market, where the empirical observation of lower than expected levels of volatility in employment and wages over the course of a business cycle has been explained by 'the hypothesis that contract wages embody implicit payments of insurance premiums by workers in favorable states of nature and receipts of indemnities in unfavorable states' (Rosen, 1985: 1145; Azariadis and Stiglitz, 1983). The equivalent of this wage rigidity in labor markets is price rigidity in consumer markets. The literature here emphasizes that risk-averse consumers interpret any change in price or quality that appears to favor producer interests as producer opportunism, so producers face strong incentives to maintain price and quality to avoid consumer boycotts (Renner and Tyran, 2004). Once 'the firm draws a clientele with attractive implicit contracts, any deviation unfavorable to consumers is seen as a violation of these contracts' (Okun, 1981: 154).

The strongest empirical support for this is provided by Young and Levy's (2010) excellent analysis of Coca-Cola's 70 years' persistence with price rigidity. The significance of implicit contracts in Coca-Cola's market is underlined by the consumer response to the firm's first formula change—the disastrous introduction of 'New Coke' in 1985, which led the then-CEO to reflect on the consequent restrictions on managerial authority, observing that it 'was then we learned that if the shareholders think they own this company, they are kidding themselves. The reality is that the American consumer owns Coca-Cola' (Tedlow, 1990: 60).

Coca-Cola is a repeat good. The principal asymmetry in this and other repeat good markets is one of time inconsistency (Young and Levy, 2010). Implicit contracts signal a commitment by producers to minimize any change over time that is not in consumer interests. In terms of Table 1, this particular producer promise simply changes the transaction characteristics of Box 3 goods more toward those of Box 1 by reducing the threat of adverse changes to future price and quality. But for this article's purposes, the focus is on Box 4-type transactions, not Box 3. Because Box 4 goods are durable goods, entrepreneurs have to convince uninformed and inarticulate consumers to buy their novel products without the prospect of repeat purchasing. The market making solution of price and quality rigidity alone is insufficient to overcome the risk of consumer withdrawal in Box 4-type markets.

Alternative strategies available to entrepreneurs outside price and quality rigidity are a scarce feature of the literature. The wider economics of incomplete contracts emphasizes the importance of periodically revisiting the explicit contracts in order to better reallocate residual rights (Holmstrom and Tirole, 1989). But such recommendations are hardly likely to assist entrepreneurs aiming to elicit consumer trust at the point of market entry. As noted earlier, Okun (1981) simply assumes such relationships have begun. Renner and Tyran (2004: 578) simply state that such long-term relationships 'endogenously form' without any indication of what kind of market making innovation might elicit consumer trust in markets for novel, complex durable goods. The approach adopted here is to return to the two key features of Box 4-type transactions which hinder market reception. If these have been correctly identified, then entrepreneurial entrants are best advised to create market making innovations to solve each specific problem in turn.

The first difficulty facing producers of novel, complex durables is of communicating to inarticulate consumers that such goods might meet their needs. Because most complex durables possess strong elements of multi-functionality, it is difficult for producers to signal likely post purchase usage to potential consumers through conventional promotion strategies. Product complexity and consumer inability to prespecify requirements suggest that an appropriate market making solution to overcome the risk of adverse selection would be for an entrepreneur to invest in signaling mechanisms to disseminate information that allow consumers to judge how they might use the product. Partial responses here might range from conventional branding strategies to strategies popular in the customer relationship management literature (such as firm-specific interactive Web sites) to engaging with customer review Web sites, and so on. But perhaps the most complete response would be to invest in a fully comprehensive

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pre-sales demonstration and after-sales service able to advise customers on their individual usage.

The second difficulty relates to the open-ended nature of transactions. The explicit contract is a spot transaction (or a near-spot transaction in cases of installment purchases). But consumers will be aware of the risk of moral hazard, as producers simply may not keep promises. For novel durable goods, producers may offer initially attractive servicing and repair terms, but may subsequently change terms, for example. Entrepreneurs seeking to overcome consumer propensity to withdraw because of the risk of moral hazard would, therefore, need to make credible commitments not to change service conditions in ways that might adversely affect consumers. But because consumers' future requirements remain unspecified at the point of transaction, such a commitment must be made through an implicit contract.

It follows that if implicit contracts are the preferred solution to overcoming the threat of consumer withdrawal in markets for complex consumer goods, entrepreneurs will need to invest in market making innovations that would reduce the risks to consumers of adverse selection and moral hazard. The most complete market making response would be a comprehensive pre-sales demonstration and after-sales service that would meet all information requirements for consumers of novel durables. Such an investment would be very costly for entrepreneurs, but it would signal a credible commitment by an entrepreneur to elicit consumer trust to make the market at the point of entry.

Given the expense associated with such a market making innovation, entrepreneurs might simply pass on the costs of after-sales services to consumers in the form of an explicit list of prices for a variety of services.[4] But charging the market rate for after-sales services opens up the possibility of third parties establishing themselves as competing sources of after-sales services. In the long run, competition in after-sales service provision is unlikely to impact firm strategy, but at the point of market entry where the need to elicit trust with consumers is the key to successful market making, competition in after-sales service may undermine the credible commitments needed for the relationship between entrepreneur and consumer to begin. So entrants will need to subsidize their market support services to deter competitor entry. Because the cost of such a subsidy has to come from product revenues, premium pricing strategies have to be employed by entrepreneurial entrants, otherwise the subsidy for market support services is not viable. The provision of below-cost after-sales support and advice to consumers of complex durables should, therefore, overcome much of the risk of potential consumer withdrawal.[5] The combination of responses has, however, effectively transformed a spot transaction of a durable good into a repeat consumption of market support services, thus changing the transaction characteristics of the good from its original Box 4 features to something more akin to a Box 3 complex, repeat good.

There remains then the time inconsistency problem identified in Box 3-type transactions, overcome most visibly above by the implicit contract offered by Coca-Cola to keep prices and quality consistent. This then implies that for the entrepreneurs of Box 4 complex durables who have already invested in pre-sales demonstration and after-sales services (or similar devices) to overcome consumers' aversion to complexity, there needs to be a further market making innovation—that of making credible commitments to price and quality rigidity of both the product itself and the after-sales services.

IMPLICATIONS

Entrepreneurs entering complex consumer goods markets, therefore, need to elicit consumer trust by making credible, yet non-specified, commitments, and they must also be able to anticipate likely competitor response. The most comprehensive market making innovations are likely to focus on market support services, as these then solve both the information problem of selection and the risk of opportunism. There are of course a range of other potential solutions, which have already been flagged earlier. But as pre-sales demonstration and after-sales services are the most complete response, it seems sensible to limit discussion to these solutions first. I return to alternative potential responses later in the concluding section.

These observations lead to two testable propositions that would demonstrate the existence and

[4] In principle, the costs of pre-sales demonstration could also be passed on to consumers in the same manner. But the obvious desire of producers to induce the transaction here obscures the same logic.

[5] Following from the previous note, the same logic applies in principle to pre-sales demonstration services, but is likely to be obscured in practice.

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boundary conditions of implicit contract-led market making innovations. First, if producers of novel products need to offer implicit commitments to consumers mediated through pre-sales demonstration and after-sales services to secure market acceptance, these market support services will be subsidized. If gaining consumer commitment to the future relationship is the key to securing the transaction, then the threat of third-party service provision must be resisted. The greater the reliance on implicit contracts, the lower the price of after-sales support to consumers. Consequently the actual product will be priced at a premium in order to subsidize the after-sales service. If producers don't rely on implicit contracts, there would be no subsidy for such provision.

Proposition 1: Where consumer acceptance of a novel product depends on entrepreneurs offering implicit contracts, market support services will be subsidized by premium product prices.

Premium prices may well attract competitor entry, but if the transaction is bound by information asymmetries leading to implicit contractual solutions, then consumers will opt for high price, high-service durables rather than cheap, low-service imitators.

Second, if implicit contracts are required to signal to consumers that producers of novel, complex durables will commit to continuing to support their after-sales requirements, we would expect to see price and quality rigidity in the product itself and in the provision of after-sales services. Furthermore, if implicit contract market making innovations are of greater importance than the product itself in establishing and maintaining market transactions, then the implication is that prices and quality would be held more rigid in after-sales services than in the product itself.

Proposition 2a: Where consumer acceptance of a novel product depends on entrepreneurs offering implicit contracts, price and quality rigidity will be observed.

Proposition 2b: If the market making innovation is of greater significance in eliciting consumer acceptance than the product itself, then price and quality rigidity will be greater in the provision of market support services than in the product itself.

It must be emphasized that the focus here is on the market conditions necessary for market entry. Once a product is established, a producer may feel less bound by their commitments to consumers. As noted earlier in the case of Coca-Cola, firms that have created markets through strong implicit contracts may discover they have less freedom of movement than might be imagined. But over time, it is likely that the costs of a fully comprehensive after-sales service could be moderated.

DATA: IMPLICIT CONTRACTS IN THE SINGER SELLING SYSTEM

Following Young and Levy's (2010) method of identifying a critical historic case study to evaluate the impact of implicit contracts, we also adopt a case study method (Burgelman, 2011; Jones and Khanna, 2006). The focus here on the properties of novel complex durable goods means that choosing a repeat good (like Coca-Cola) is not suitable. Moreover, our focus on understanding the fundamental properties of such transactions in the absence of warranties and other interventions to overcome such time inconsistency and complexity problems implies that the best case would be before state mandated standards and minimum warranties were introduced. This leads us to focus on what was historically the first case of a mass marketed, mass produced, high tech complex consumer durable, the sewing machine.

Young and Levy further justify their selection of Coca-Cola by referring to its economic significance: the company's 1945 global sales summed to the equivalent of 0.13 percent of U.S. GDP (Young and Levy, 2010). Singer was the dominant producer of sewing machines before the 1930s, so it is the key case study among sewing machine producers. Its relative significance dwarfed that of Coca-Cola. Between 1868 and 1914, the firm produced 43 million sewing machines, more than 90 percent as consumer goods. As a durable good, these machines were invariably one-off purchases, and with a very low depreciation rate, they were almost never repeated by households. By the end of World War I, approximately one in every five households in the world had a Singer sewing machine.[6] This vast stock

[6] The global population in 1913 was 1.79 billion, somewhat less after the 1918 flu epidemic (Maddison, 2007). Assuming a mean household size of seven results in about a quarter of a million households. Adding Singer's wartime production of machines to its pre-war stock sums to something close to a total stock of 50 million machines; this leads to the assumption of one in five households with a Singer machine.

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of domestic machinery converts into a notional monetary value of 0.57 percent of *global* GDP in 1913![7]

The Singer selling system was based around an implicit contract with uninformed consumers to provide as much pre-sales demonstration and after-sales services as required, thus reducing consumer risks of adverse selection and moral hazard surrounding the purchase of this novel and, for the period, high tech, complex consumer durable. These were features that were not included in the explicit contract of exchange, which was usually just a schedule of installment payments.

Singer created its novel distribution system in Britain (not in the United States) in the late 1870s. Its original U.S. sales system was based around retail outlets. Singer had made a commitment to the British market by opening a factory in Glasgow in 1865, but this did not initially lead to superior market share. But because Singer faced a different cost structure in the British market compared with its several U.S. rivals (none of which had any sunk costs in a British branch factory), it was forced to act earlier and invest in a market making solution—its novel selling system (Godley, 1999, 2001, 2003; Godley and Fletcher, 2000a, 2000b).

The innovative British selling system required recruiting and managing many, many thousands of sales staff, who were instructed to cold call every household in their territories each year, to collect installment payments from all customers in their homes and to offer pre-sales demonstration and after-sales service in customers' (and for pre-sales demonstration in potential customers') houses on demand. This was as close to a fully comprehensive market support service as is possible to imagine.

The sewing machine was invented in the United States in the 1850s, and it was met with enormous success there in the 1860s and 1870s. It was first sold in Britain in the late 1850s and 1860s. But sales took off in Britain only after the innovative selling system was rolled out after 1875. The product innovation was, therefore, separate from the market making innovation. Outside North America and Britain, sales were close to negligible before 1875. Market penetration in these emerging markets began only once the new selling system was introduced. As Singer entered these emerging markets, its sewing machines met with remarkable levels of acceptance, typically enjoying 80 to 90 percent shares of these markets. This was not because Singer machines were cheap—they were not. They were always priced at a significant premium. This was not because they were of a higher quality. Machines made by Willcox and Gibb, Wheeler and Wilson, or, later, Pfaff, were considered technologically superior. Rather, it was because Singer entered each new market with a saturation sales and market support service that overcame the risks of adverse selection and moral hazard to consumers. Competitors without similar commitments to such expensive pre-sales demonstration and after-sales service either withdrew from the market or remained low-cost competitors with inferior service offerings and only small market shares (Godley, 2006).

By contrast, Singer never attained such dominance in its domestic U.S. market. There the demand for sewing machines had already matured before the mid-1870s, and market saturation had already been reached by the time of Singer's innovation in selling, so there were fewer information asymmetries, negligible novelty, and alternative actors were already competing to provide after-sales service (Chandler, 1977, 1990; Godley, 2006; Casson and Godley, 2007; Williamson, 1981).

Evidence to support Singer's relative success in overseas markets can be seen from Figure 1, which compares the diffusion of Singer machines from the late 1870s in several key overseas markets with the diffusion of sewing machines produced by all manufacturers in the United States (where the Civil War had acted as an artificial brake on consumption until 1866). Allowing for differences in levels of per capita income, the figure shows how the new selling system enabled Singer to enjoy greater success in emerging markets than any of its competitors.

It has already been noted that the explicit contract was a cursory affair. But was this success based on offering attractive implicit contracts to Singer's consumers as it entered these emerging markets? The first proposition detailed earlier suggests that where

[7] Converting the total stock of machines into a monetary value in 1913 requires a depreciation rate to be applied to the machine sale prices. There is no single measure for a worldwide depreciation rate for 1913. Gregory (1985) estimates a depreciation rate for pre-1914 Russia (Singer's biggest market) to have been 2 percent. A similar rate is conventional for pre-1914 U.K. (Matthews, Feinstein, and Odling Smee, 1982). By contrast, Feldenkirchen (1982) assumes a depreciation rate for German industrial goods to have been a relatively high 6 percent. I have taken the figure of 3 percent as the depreciation rate for domestic Singer sewing machines. The mean price paid per machine over the period 1880 to 1914 was $38. The net effect is to produce a a value on the depreciated 1914 stock of Singer machines of just under $1.4 billion, which was 0.57 percent of world GDP, estimated to have been $2.733 trillion in 1913 (Maddison, 2007).

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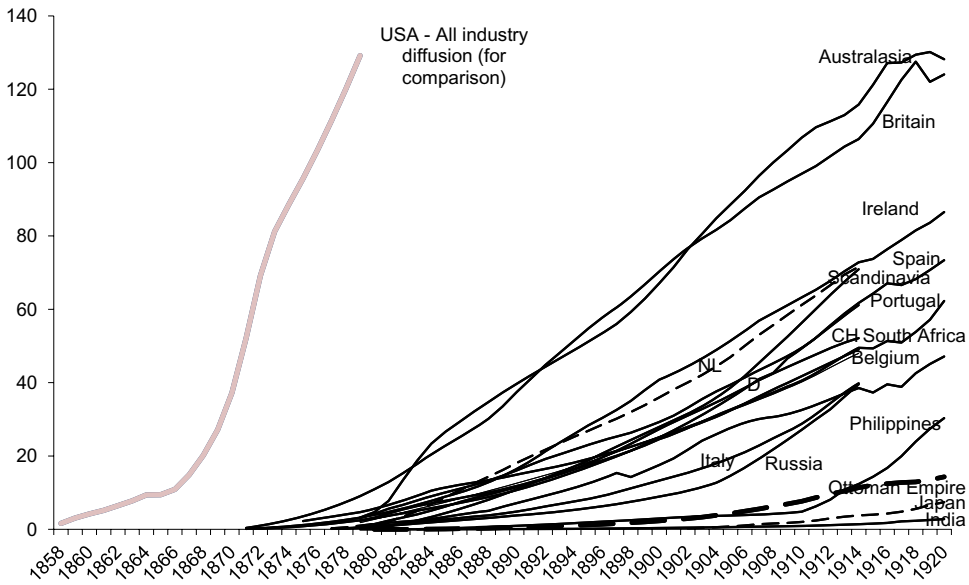

Figure 1. Diffusion of Singer sewing machines (aggregate machines sold per thousand of population) in the leading emerging markets from 1870 to 1920, compared with all industry diffusion in the United States from 1858 to 1880
Source: Adapted from Godley, 2006.

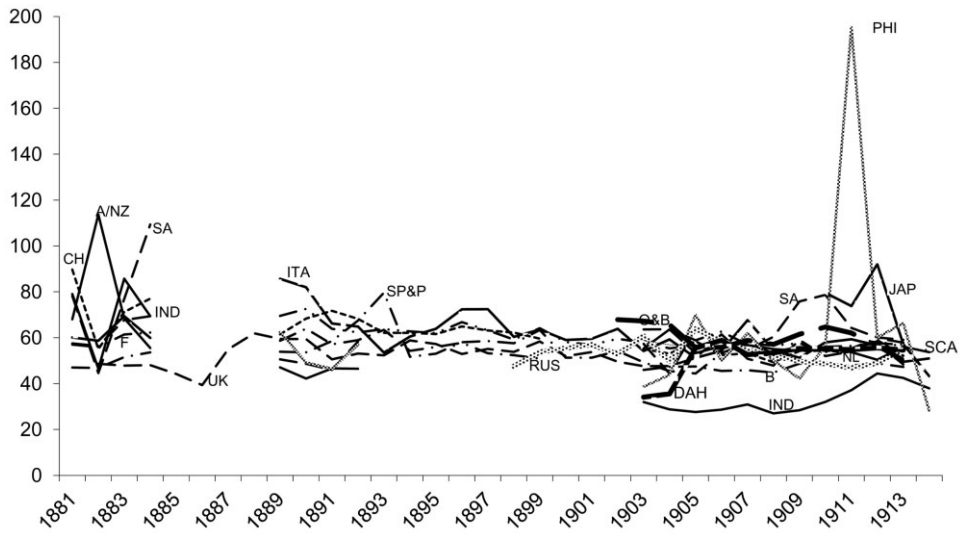

Figure 2. Singer's sales expenses as a percentage of gross income in leading emerging markets, 1880 to 1913
Source: Adapted from Godley, 2006.

implicit contracts are important in overcoming consumer resistance to complex consumer durables, the market support services offered would need to be subsidized. Godley (2006) reports the cost of the selling system in each of Singer's overseas markets, reported here in Figure 2.

This shows that the cost of selling occasionally varied from 30 percent to 200 percent of any single market's gross income for that year. But the overall mean cost of selling was 60 percent of gross revenues across all markets and over the entire period. It is impossible to disaggregate with any accuracy the cost of selling from the cost of market support services, indeed they were commingled deliberately. Where national markets reached saturation, such as the U.K. from 1905 onward, sales costs did not

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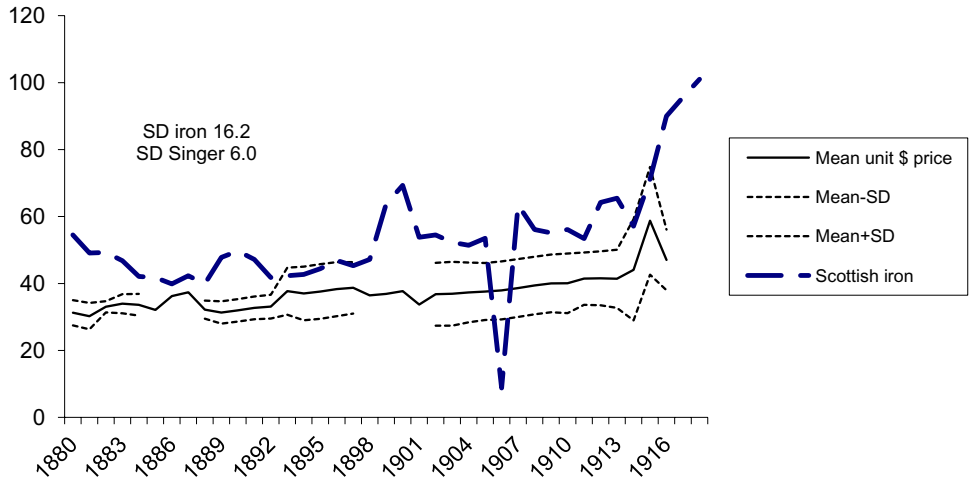

Figure 3. Price rigidity in sewing machines? Singer's global pricing compared with iron prices, 1880 to 1918 (sewing machine and iron prices in current £)
Source: Adapted from Godley (2006) for Singer and Mitchell (1962) for Scottish iron. Iron prices indexed 1918 = 100.

decline (compare the U.K. in Figures 1 and 2), perhaps suggesting market support costs dominated total sales costs.[8] Clearly this is noisy data, but it seems entirely reasonable to deduce that the cost of market support services was a substantial share of total sales costs.[9] Yet other than charging for the costs of spare parts, Singer made all its market support services free of charge. This represented an enormous subsidy—one that was made possible only by premium pricing. Singer, with its expensive market support service, had to charge the highest prices in the market. In most overseas markets, its nearest competitors charged a third less for near identical machines, in some less than half (Godley, 2006; Casson and Godley, 2007; Gordon, 2011).

The second proposition considers whether evidence of price rigidity might indicate the use of implicit contracts and, further, whether prices for the product or for market support services were more or less rigid, indicating relatively greater or lesser dependence on implicit contracts in the two activities. As Young and Levy (2010) have documented for Coca-Cola, the general price environment over the period was one of very low inflation and occasional deflation. But individual commodities experienced different price trajectories.

The most important commodity for sewing machines was iron. Direct evidence of Singer's price rigidity emerges in Figure 3, where price volatility in iron prices is compared with Singer's pricing in overseas markets from 1880 to 1914.[10] The evidence suggests that Singer's machine prices were far less volatile than the single most important input cost; the standard deviation in sewing machine prices was almost one-third that of iron prices. This relative price rigidity is suggestive of Singer using implicit contracts in its product offerings. But the price for market support services remained at zero throughout. Given that there was some (albeit small) change in product pricing over the period, price rigidity in Singer's market support service was, therefore, greater than that in its product offering. If price rigidity is positively correlated with the significance of implicit contracts, then Singer's offering of innovative market support services depended even more on implicit contracts than its success arising from an innovative product in emerging markets.

Such results are only suggestive. of course. Explicit evidence of an implicit contract is, as Young and Levy (2010) remind us, difficult to find. Nevertheless, anecdotal support from documentary

[8] The obvious counter argument is that the marginal cost of selling increased beyond the point of saturation.
[9] Occasional breakdown of the different roles of employees in the selling organization suggest that around 40 percent of employees were engaged in sales, the rest in support services. But, as explained, the actual role of sales staff also included a considerable amount of market support activities.

[10] We focus on price rigidity rather than quality rigidity simply because it is far more observable.

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sources within the Singer archives suggests that the company increasingly understood the nature of its commitment to its consumers. By 1918, the head of the strategically important U.K. sales office (which oversaw most international sales) stated in the company magazine that 'It is as a Maintenance Organization, however, that the Singer Companies achieve their greatest value' (Godley, 2006: 295), indicating clearly to all employees in the international sales organization that the implicit contracts with consumers mediated through the market support services were the reason consumers had been so willing to commit to Singer rather than cheaper competitors.

DISCUSSION AND CONCLUSION

The entrepreneurial opportunities literature has, it is contended here, declined to give opportunity exploitation the emphasis it deserves in recent years. In an attempt to outline why opportunity exploitation is so significant, this article has attempted to separate market making from product innovation and has done so by deliberately focusing on the most complex markets—those where the characteristics of the transaction are most likely to lead to consumer withdrawal regardless of the merits of the actual product.

Insights from the economics of information and behavioral economics suggest that consumers are less accepting of novelty than conventional theory implies. Consumers, therefore, are likely to withdraw from transactions when faced with the risks of adverse selection and moral hazard. Such conditions are most acute in markets for novel, complex, and high tech consumer durables. Because of consumer inarticulacy, entrepreneurs need not only to make credible commitments to elicit consumer trust, but also to do so via tacit information—commitments that, therefore, go far beyond those enshrined in the explicit contract. As depicted in Young and Levy's (2010) case of Coca-Cola and the case of Singer sewing machines outlined here, the presence of implicit contracts governing market transactions introduces significant constraints on producers' freedom of action. In addition to credible commitments to future price and quality rigidity, the focus has been on outlining why entrepreneurs must offer additional market support services to convey necessary information.

The focus in this article has been on exploring how the most complete response to reducing consumer uncertainty might well involve a fully comprehensive pre-sales demonstration and after-sales service. At the point of market entry, service requirements cannot accurately be forecast, so commitments are implicit and open ended. Because eliciting consumer trust at the outset is so important, competitor entry into market support services must be deterred, meaning that market support services are subsidized and, hence, the novel product itself must have a premium price. In these markets, 'price *must* exceed marginal cost' (Stiglitz, 2000: 1460). But unlike in conventional markets, cheap competitors pose less of a threat.

Over time, of course, conditions of uncertainty are likely to diminish and consumers become more familiar with their complex durables, their requirements become more predictable, and their sensitivity to price competition increases. Producers are likely to be able to move progressively more toward explicit contracts for their market support services, which may relax the constraints of mutual commitment on firm strategic behavior in time. But for entrepreneurs wanting to launch such kinds of novel, complex durable goods, the important conclusion here is that they need to be aware of the likely additional costs involved in a successful product launch of offering a suitable market making solution to uninformed consumers. Business models that fail to take such consumer risk aversion fully into account are likely to overestimate consumer acceptance.

The case of Singer in its international markets highlights how this market making innovation was more significant to that company's fortunes than the product innovation itself. But successful entry into other complex consumer goods markets need not be based on such comprehensive and expensive commitments to implicit contracts as seen in the Singer case. Alternative entrepreneurial responses that reduce risks of adverse selection and moral hazard have already been indicated here, but might also include encouraging early adopting consumers to post reviews on comparison Web sites or to give prominence to endorsements from independent advisors or intermediaries, for example. Indeed, the number of theoretically possible solutions is very large.

The theory developed here may, therefore, have a large number of applications in the field of entrepreneurship research. For example, the identification of the necessity of market making innovations for successful entry into such markets may also help explain one of the curious outcomes in the recent

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literature. Ireland, Hitt, and Sirmon (2003) have shown that while small firms are relatively superior at opportunity discovery and development, large firms are much better at opportunity exploitation. Over and above the advantages size gives in distribution channels, the results above suggest that larger firms find it easier to offer attractive implicit contracts to consumers, perhaps because their commitments are more credible, or perhaps because their previous experience means that their development of additional implicit contracts is simply an extension of existing relationships. Completely new entrants by contrast simply do not have existing customer relationships from which to build.

One possible application of the theory developed here may, therefore, be that new start-up firms in high tech sectors currently underestimate the hurdles they face in successfully bringing their products to market. Before developing such a possible application further, however, it is necessary to model the entrepreneurial response of engaging in implicit contracts with consumers more formally. Developing such a concept into a more formal partial equilibrium model should 'fully confront the inadequacies' of the currently proposed theory, so it must be the most sensible next step (Stiglitz, 2000: 1456). This would enable future entrepreneurship scholars to assess which kind of market making innovation would be the most suitable entrepreneurial response according to which set of market conditions.

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