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EXPLORANDO ESTRATEGIAS DENTRO DE LA ECONOMÍA INFORMAL: TRES ENSAYOS SOBRE LAS FARMACIAS ILEGALES ONLINE

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EXPLORING STRATEGIES WITHIN THE INFORMAL ECONOMY: THREE ESSAYS ON ILLEGAL ONLINE PHARMACIES

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Exploring Strategies within the Informal Economy: Three Essays on Illegal Online Pharmacies

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For my mother, Hana Buqrais, and my late father, Jehad Almutawa
Your constant love sustained me

ABSTRACT

The informal economy is often understudied, and as a result we lack a conceptual understanding about how firms compete and strategize in the illegal side of the economy. In this dissertation, I seek to redress this by looking at strategies that illegal online pharmacies and their stakeholders use to help elucidate general management theories, through three empirical essays. In the first essay I look at how audiences respond to the use of multiple impression management efforts, and show that at a certain point adding efforts may be detrimental because suspicion might be triggered. This emphasizes the importance of exploring cogitation when looking at impression management. In the second essay I provide a novel rationale for why some certifications could be detrimental to the firm, by looking at violations of audience expectations. I demonstrate that if audiences believe problems to be salient in a firm, then certifications are seen as a way to showcase that those problems are being addressed, resulting in a positive expectancy violation and improved trust outcomes. If, however, the problem is not seen as salient, then certifications provide information that the problem is more salient than originally expected, giving rise to a negative expectancy violation and worse trust outcomes. In the third essay I build a more nuanced model about who regulators target. I argue that regulators will be less likely to target violators with strong competitive advantages and hard-to-build resources/capabilities, because they are more likely to ignore them given how much they would lose, and are therefore relatively costlier to purse. My dissertation contributes to a number of management theories including impression management, certification, expectancy violations, and regulatory enforcement theories.

RESUMEN

La economía informal suele estar poco estudiada, por lo que carecemos de una comprensión conceptual sobre cómo compiten y elaboran estrategias las empresas en la parte ilegal de la economía. En esta tesis, trato de corregir esta situación examinando las estrategias que utilizan las farmacias ilegales online que atienden al mercado estadounidense, así como sus grupos de interés, para ayudar a dilucidar las teorías generales de gestión a través de tres ensayos empíricos. En el primer ensayo examino cómo responde el público al uso de múltiples esfuerzos de gestión de la impresión, y muestro que en un determinado momento añadir esfuerzos puede ser perjudicial porque puede surgir la sospecha. Esto subraya la importancia de explorar la reflexión cuando se estudia la gestión de la impresión. En el segundo ensayo ofrezco una novedosa justificación de por qué algunas certificaciones pueden ser perjudiciales para la empresa, examinando los incumplimientos de las expectativas del público. Demuestro que si el público cree que los problemas son importantes en una empresa, las certificaciones se ven como una forma de mostrar que esos problemas se están abordando, lo que da lugar a un incumplimiento positivo de las expectativas y a una mejora de los resultados de la confianza. Si, por el contrario, el problema no se considera significativo, las certificaciones informan de que el problema es más importante de lo que se esperaba en un principio, lo que da lugar a un incumplimiento negativo de las expectativas y a peores resultados de confianza. En el tercer ensayo construyo un modelo más matizado sobre a quién se dirigen los organismos de control. Sostengo que es menos probable que los organismos de control se dirijan a los infractores con fuertes ventajas competitivas y recursos/capacidades difíciles de crear, porque es más probable que los ignoren dado lo mucho que perderían, y por lo tanto son relativamente más costosos de perseguir. Mi tesis contribuye a una serie de teorías de gestión, como la gestión de las

impresiones, la certificación, los incumplimientos de las expectativas y las teorías de cumplimiento de las leyes.

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CHAPTER 1

INTRODUCTION

The informal economy accounts for about 41 percent and 18 percent of developing and OECD countries' official GNI respectively (Schneider, 2002). Despite its breadth and size, however, few studies within the management literature have looked at firms within this sector (Bruton, Ireland, & Ketchen, 2012; Cannatelli, Smith, & Sydow, 2019; Darbi, Hall, & Knott, 2018; McGahan, 2012), mostly due mostly to the difficulty of collecting data about illegal activities, as well as the fuzzy boundaries about what constitutes informality.[1] As a consequence, we lack a conceptual understanding about how firms compete in the illegal side of the economy.

It is important to look at the sector not only because does it help illuminate theories about the illegal sector, and how these firms operate, but also as a lens that has the potential to better inform us about our existing management theories. Firms competing within the illegal sector have idiosyncratic characteristics that firms within the legal setting might not have. First, this is a context where firms may have varying degrees of legitimacy (Webb, Khoury, & Hitt, 2019) and coming to a determination about the legitimacy of any single firm is not necessarily simple. In fact, perhaps more than the legal sector, the illegal setting may lend itself to many heterogeneous

[1] Although some scholars (e.g. Darbi, Hall, & Knott, 2018; Swanson & Bruni-Bossio, 2019) have pushed for a delineation in the informal economy literature between firms conducting criminal activities and firms that are just not registered and therefore are informal only because of the lack of regulatory oversight and tax evasion, I perceive this to be an arbitrary and ineffective theoretical and empirical delineation. First the line between what is criminal and what is not is unclear. Would a street vendor who engages in selling counterfeit Hello Kitty backpacks, or an abortion clinic in a country where abortion is criminalized not be considered as part of the informal economy discourse? Second, what is perceived as highly criminal can change over time such as with the successful marijuana legalization efforts across some states in the US and its prohibition on the federal level. Third the legitimation of some extreme criminal activities is possible (Webb, Tihanyi, Ireland, & Sirmon, 2009). Vaccaro and Palazzo (2015) mention a great example of how a Sicilian entrepreneur was socially shunned by other Sicilians (and ultimately assassinated) after speaking out against the Sicilian Mafia. Instead, I acknowledge as tangentially stated by De Castro, Khavul, and Bruton (2014) that the informal economy is more encompassing and may include elements of illegal behavior, and use the terms illegal and informal interchangeably.

micro-level legitimacy judgements based on different ex-ante expectations and predispositions (Desai, 2011; Lamin & Zaheer, 2011), which then ultimately lead to macro-level effects (Bitektine & Haack, 2015; Hoefer & Green, 2016; Suddaby, Bitektine, & Haack, 2016). Second, within the informal setting, trust is imperative for firm survival as they operate beyond the boundaries of the law (Bruton et al., 2012; Lee & Hung, 2014). But trust (and distrust) here encompasses a multitude of stakeholders. Firms within the informal sector might have to cross a higher bar to get consumers to trust them. Operating outside the boundaries of the law makes it harder for consumers to trust, but also harder to redress any violations (Williams & Nadin, 2012). Firms within the informal economy also need to create alternative networks to compensate for the lack of formality that are primarily based on trust (Godfrey, 2011; Khavul, Bruton, & Wood, 2009). Getting access to labor markets, capital, ancillary services, are extremely tough and are shrouded in trust. Finally, there might be a distrust of formal institutions, especially in emerging economies where corruption and/or the costs of founding and operating a business might be high (Godfrey, 2011; Webb, Bruton, Tihanyi, & Ireland, 2013). Third, the illegal sector provides us with a context where there are two different and often competing priorities: survival and profit-seeking. Navigating this trade-off is often not straightforward. Visibility for example might help consumers find an illegal firm, but might similarly help regulatory agencies find them as well, endangering the illegal firm in the process. Illegal firms constantly suffer fear of detection and risk of prosecution (Williams & Nadin, 2012). Thus, visibility, agglomeration, and trust among others, might be emphasized differently and have different connotations within the informal sector.

On the flipside, focusing on the illegal sector allows us to also better assess regulatory agencies, and how they work and function (an often understudied topic). Regulators are often

researched within the formal context, looking at misconduct and wrongdoing usually by 'visible' or public firms (Duro, Heese, & Ormazabal, 2019; Heese, 2019). Conclusions from this literature then assume that nearly all wrongdoing is known and subjected to enforcement. However, this research only really looks at those firms which were either unsuccessful in evading detection, or those for which the regulator decides to subject to regulatory enforcement or prosecution. Looking at the illegal context, provides a cleaner setting by which to study the regulatory environment, given that all firms within the informal setting are technically operating outside the boundaries of the law.

Still, given how these natural boundaries, constraints, and conditions have the ability to challenge how we look at some of our existing theories, it is surprising that the majority of research has only ever really looked at the antecedents and determinants of informality (Webb et al., 2013). The extant literature has been dearth on the operational aspects of the informal setting as well as interestingly the outcomes of being part of the informal economy. In this dissertation, I try to solve for this by looking at strategies that firms within the informal sector employ, and different stakeholders' responses to them. I provide three different empirical papers that look at different strategies (i.e. different uses of certification and a projection of toughness) and how consumers and regulators react to those strategies.

I specifically look at the context of illegal online pharmacies (IOPs) that cater to the US market. The WHO estimates that about a third of all prescription drugs (and in some regions upward of two thirds of all prescription drugs) are counterfeit. The counterfeit, substandard, and fake pharmaceuticals market is estimated to be worth over $400 billion a year, surpassing almost everything else in the illegal sector including prostitution, human trafficking and illegal arms sales (Scott, 2016). In fact, the majority of online pharmacies selling primarily to the US market

are IOPs (NABP, 2020), which are criminalized under many laws including the Federal Food, Drug, and Cosmetic Act (FDCA) and the Ryan Haight Act. Yet IOPs continue to thrive. One-third of participants in a survey conducted in the US by ASOP Global responded that they have "used an online pharmacy to purchase medications for themselves, a family member or someone under their care" (ASOP Global, 2017: 4).

Most consumers order drugs through online pharmacies because they offer cheaper prices (Mackey & Liang, 2011; Quon et al., 2005), more convenience, and/or access to drugs that are unavailable in the market (i.e. recalled, in short supply, or illegal) (Liang & Mackey, 2012; Mackey & Liang, 2011). Access to controlled substances as well as prescription medication in IOPs remain unrestricted, which makes counterfeit and low-quality drugs as well as pharmaceutical supply chain integrity real concerns (Jena & Goldman, 2011; Jena, Goldman, Foster, & Califano, 2011). Drugs from IOPs, for example, often include the active ingredient, but in improper amounts (Leontiadis, Moore, & Christin, 2011).

Still, it has been challenging for consumers to figure out the degree of reliability, legitimacy, and respect for rules that different online pharmacies have (Pharmaceutical Commerce, 2017). IOPs may look similar to legal ones, and most consumers are incapable of discerning what is "real" and what is "fake" even when receiving them. Additionally, because there is an overwhelming number of IOPs, searching for drugs on search engines usually lead consumers to them. Finally, 95 percent of those surveyed in the US, were unaware that any certification programs existed that differentiated between legal online pharmacies and their illegal counterparts. Further complicating this calculus, IOPs use many types of certifications, including some that are not necessarily well-known or fully valid, which may lure consumers

into a false sense of security (Mackey & Nayyar, 2016). The encompassing nature of this context, thereby makes it a great one by which to look at the illegal sector.

In the first essay titled *'Mo Certifications 'Mo Problems: The Effects of Multiple Impression Management on Illegal Online Pharmacies' Visitors* I explore the question of why firms engage in multiple impression management efforts, and specifically how audiences respond to the use of multiple certifications, and what their benefits and costs are. I propose that there exists a dual effect. Combining certifications leads to improved firm outcomes through a combinatorial effect facilitated by audience confirmatory bias (Nickerson, 1998; Tetlock, 1983) before providing diminishing returns due to information and quality redundancies (Lanahan & Armanios, 2018; Plummer, Allison, & Connelly, 2015; Stern, Dukerich, & Zajac, 2014; Waldrop, McCluskey, & Mittelhammer, 2017). However, I also apply the persuasion knowledge model to propose that at a certain point adding new certifications may actually be detrimental because suspicion might be triggered. I examine trust outcomes by external audiences resulting from the use of multiple certifications by IOPs, and find that the number of certifications has an inverted U-shaped effect on customers' trust. I also look at certification diversity and temporal dispersion as factors that affect the turning point of that inverse U relationship as they delay information redundancies or suspicion. These results emphasize the importance of exploring cogitation when looking at impression management, and pushes the boundaries of the literature on certification.

In the second essay titled *The Problem and the Fix: A Tale of Expectations* I provide a novel rationale for why some certifications could be detrimental to the firm, and help explain why some firms might decide not to publicize their certifications. Using expectancy violations theory, I posit that audiences have different ex-ante expectations about firms' behaviors. To capture

audiences' expectations about whether transaction safety is a salient problem or not in IOPs, I look at the extent to which audiences perceive them as safe in terms of drug safety by means of attribute substitution (Kahneman & Frederick, 2002; Shah & Oppenheimer, 2008). Two sets of characteristics that affect audience expectations about drug safety are website characteristics derived from self-regulation and visitor characteristics derived from search behavior. Visitors who go to IOPs that are not self-regulated or search for unsafe drugs expect those IOPs to have significant and salient transaction security problems, and certifications provide a way to showcase to audiences that those problems are being addressed and are not as salient as they originally expected, resulting in a positive expectancy violation and increased trust. However, visitors might indeed not expect that problems exist or that they are salient, especially if the IOP is self-regulated or they search for safe drugs. In this instance, the use of certification provides information that the problem exists or is more salient than originally expected, giving rise to a negative expectancy violation and decreasing consumers' trust. I also find indications that that this effect is more pronounced the more visible and salient the certification is.

In the third essay titled *Going After Easy Prey: A Theory of Regulatory Enforcement* I adapt the literature on corporate opportunity structures from social movements to regulatory agencies, and build a more nuanced model about who regulatory agencies target. I suggest that regulatory agencies, similar to social activists, are mindful of the risk and cost, and therefore look at resources/capabilities that help them assess the corporate opportunity structure and whether these firms are likely to comply with their directives or ignore them (Briscoe, Chin, & Hambrick, 2014; King, 2008; Soule, 2009). I argue that complying with or ignoring regulators, depends on whether the firm has hard-to-build resources/capabilities that provide strong competitive advantages, which will need to be expunged if the firm were to comply with those pressures and

stop or modify its behavior. If a regulatory agency then targets a firm that has these distinct resources, they are less likely to change and more likely to ignore them because they have more to lose than firms without those resources. Overall, then, if regulators care about maximizing their reward given comparable risks, and if firms that have competitive advantages are less likely to change and more likely to ignore regulators and are therefore relatively costlier to purse, then I expect that regulators will be less likely to target violators with strong competitive advantages and distinctive resources/capabilities. I test this by looking at which IOPs were more likely to be targeted by the FDA, and demonstrate that IOPs who amassed more customer loyalty, are located in more popular search keywords, or are more visible, are less likely to be targeted by the FDA.

The rest of the dissertation is organized as follows. Chapter 2 presents the first essay of my dissertation. Chapter 3 presents the second essay of my dissertation. Chapter 4 presents the third essay of my dissertation. Finally, in Chapter 5 I conclude the dissertation by discussing the key findings of all three papers, as well as the overarching theoretical and practical contributions. I also highlight a number of limitations, and propose an agenda for future research.

CAPÍTULO 1

INTRODUCCIÓN

La economía informal representa aproximadamente el 41% y el 18% de de los Ingresos Nacionales Brutos (INB) oficiales de los países en desarrollo y de la OCDE, respectivamente (Schneider, 2002). Sin embargo, a pesar de su amplitud y tamaño, pocos estudios dentro de la literatura de gestión han analizado las empresas dentro de este sector (Bruton, Ireland, & Ketchen, 2012; Cannatelli, Smith, & Sydow, 2019; Darbi, Hall, & Knott, 2018; McGahan, 2012), debido principalmente a la dificultad de recopilar datos sobre las actividades ilegales, así como a los límites difusos sobre lo que constituye informalidad.[2] En consecuencia, carecemos de una comprensión conceptual sobre cómo compiten las empresas en el lado ilegal de la economía.

Es importante examinar el sector no sólo porque ayuda a iluminar las teorías sobre el sector ilegal y el modo en que operan estas empresas, sino también como una lente que tiene el potencial de informarnos mejor sobre nuestras teorías de gestión existentes. Las empresas que compiten en el sector ilegal tienen características idiosincrásicas que las empresas del entorno legal podrían no tener. En primer lugar, se trata de un contexto en el que las empresas pueden

[2] Aunque algunos estudiosos (por ejemplo, Darbi, Hall & Knott, 2018; Swanson & Bruni-Bossio, 2019) han impulsado una delimitación en la literatura de la economía informal entre las empresas que realizan actividades delictivas y las empresas que simplemente no están registradas y, por lo tanto, son informales exclusivamente por falta de supervisión regulatoria y por evasión de impuestos, tengo la impresión de que se trata de una delimitación teórica y empírica arbitraria e ineficaz. En primer lugar, la línea que separa lo que es delictivo de lo que no lo es no está clara. ¿Un vendedor ambulante que se dedica a la venta de mochilas falsificadas de Hello Kitty, o una clínica de abortos en un país en el que el aborto está penalizado no se considerarían parte del discurso de la economía informal? En segundo lugar, lo que se percibe como altamente delictivo puede cambiar con el tiempo, como ocurre con el éxito de los esfuerzos de legalización de la marihuana en algunos estados de Estados Unidos y su prohibición a nivel federal. En tercer lugar, es posible la legitimación de algunas actividades delictivas extremas (Webb, Tihanyi, Ireland & Sirmon, 2009). Como gran ejemplo, Vaccaro y Palazzo (2015) mencionan cómo un empresario siciliano fue rechazado socialmente por otros sicilianos (y finalmente asesinado) después de hablar en contra de la mafia siciliana. En cambio, reconocemos, como afirman tangencialmente De Castro, Khavul y Bruton (2014), que la economía informal es más amplia y que puede incluir elementos de comportamiento ilegal, y utilizamos los términos ilegal e informal indistintamente.

tener distintos grados de legitimidad (Webb, Khoury y Hitt, 2019), y llegar a determinar la legitimidad de una sola empresa no es necesariamente sencillo. De hecho, tal vez más que el sector legal, el entorno ilegal puede prestarse a muchos juicios de legitimidad heterogéneos a nivel micro, basados en diferentes expectativas y predisposiciones ex-ante (Desai, 2011; Lamin & Zaheer, 2011), que en última instancia conducen a efectos a nivel macro- (Bitektine, 2011; Bitektine & Haack, 2014; Hoefer & Green, 2016).

En segundo lugar, en el ámbito informal la confianza es imprescindible para la supervivencia de las empresas, ya que operan más allá de los límites de la ley (Bruton et al., 2012; Lee & Hung, 2014). Pero la confianza (y la desconfianza) abarca aquí a una multitud de partes interesadas. Las empresas del sector informal pueden tener que superar un listón más alto para que los consumidores confíen en ellas. Operar fuera de los límites de la ley hace más difícil que los consumidores confíen, pero también más difícil reparar cualquier infracción (Williams & Nadin, 2012). Las empresas de la economía informal también necesitan crear redes alternativas para compensar la falta de formalidad, que se basan principalmente en la confianza (Godfrey, 2011; Khavul, Bruton & Wood, 2009). El acceso a los mercados de trabajo, al capital y a los servicios auxiliares es extremadamente difícil y está resguardado por la confianza. Por último, puede existir una desconfianza en las instituciones oficiales, especialmente en las economías emergentes, donde la corrupción y/o los costes de crear y operar un negocio pueden ser elevados (Godfrey, 2011; Webb, Bruton, Tihanyi, & Ireland, 2013).

En tercer lugar, el sector ilegal nos ofrece un contexto en el que existen dos prioridades diferentes y a menudo contrapuestas: la supervivencia y la búsqueda de beneficios. Navegar por este equilibrio no suele ser sencillo. La visibilidad, por ejemplo, puede ayudar a que los consumidores encuentren una empresa ilegal, pero también puede ayudar a que sea descubierta

por los organismos de control, poniendo en peligro a la empresa ilegal en el proceso. Las empresas ilegales tienen constantemente miedo de poder ser detectadas y, por tanto, corren el riesgo de ser procesadas (Williams & Nadin, 2012). Así pues, visibilidad, concentración y confianza, entre otras cosas, pueden tener un énfasis diferente y connotaciones distintas dentro del sector informal.

Por otro lado, centrarse en el sector ilegal nos permite también evaluar mejor las agencias reguladoras, cómo trabajan y su funcionamiento (un tema a menudo poco estudiado). Los organismos reguladores suelen investigarse en el contexto formal, examinando las conductas indebidas y las infracciones que suelen cometer las empresas "visibles" o públicas (Duro, Heese & Ormazabal, 2019; Heese, 2019). Las conclusiones de estos textos asumen que se conocen casi todas las irregularidades y que éstas se encuentran sometidas a la aplicación de la ley. Sin embargo, esta investigación sólo examina realmente las empresas que no han logrado detectar la evasión, o aquellas a las que el organismo de control decide someter al cumplimiento del marco regulatorio o a un procesamiento legal. El análisis del contexto ilegal proporciona un marco más claro para estudiar el contexto de control, dado que todas las empresas del entorno informal operan técnicamente fuera de los límites de la ley.

Sin embargo, dado que estos límites, limitaciones y condiciones naturales tienen la capacidad de desafiar la forma en que miramos algunas de nuestras teorías existentes, es sorprendente que la mayoría de las investigaciones sólo hayan examinado realmente los antecedentes y los condicionantes de la informalidad (Webb et al., 2013). Actualmente hay muy poca bibliografía que trate los aspectos operativos del entorno informal, así como las consecuencias de formar parte de la economía informal. En esta tesis intento resolver este problema examinando las estrategias que emplean las empresas del sector informal y las

respuestas de las diferentes partes interesadas. Aporto tres trabajos empíricos diferentes que analizan distintas estrategias (es decir, distintos usos de la certificación y una proyección de resistencia) y cómo reaccionan los consumidores y los organismos de control ante esas estrategias.

En concreto, examino el contexto de las farmacias ilegales online (FIOs) que abastecen el mercado estadounidense. La Organización Mundial de la Salud (OMS) calcula que aproximadamente un tercio de todos los medicamentos recetados (y en algunas regiones más de dos tercios de todos los medicamentos con receta) son falsificados. Con un valor de 400.000 millones de dólares al año, el mercado de productos farmacéuticos falsificados supera a casi todos los otros dentro del sector ilegal, incluida la prostitución, el tráfico de personas y la venta ilegal de armas (Scott, 2016). La mayoría de las farmacias online que venden principalmente al mercado estadounidense son FIOs (NABP, 2020). Las FIOs están penalizadas por muchas leyes, entre ellas la Ley Federal de Alimentos, Medicamentos y Cosméticos (Federal Food, Drug, and Cosmetic Act -FDCA-) y, en 2008, por la Ley Ryan Haight. Sin embargo, las FIOs siguen prosperando. Un tercio de los participantes en una encuesta realizada en Estados Unidos por ASOP Global respondieron que habían "utilizado una farmacia online para comprar medicamentos para ellos mismos, para un familiar o para alguien a su cargo" (ASOP Global, 2017: 4).

La mayoría de los consumidores piden medicamentos a través de farmacias online porque ofrecen precios más baratos (Mackey & Liang, 2011; Quon et al., 2005), más comodidad y/o acceso a medicamentos que no están disponibles en el mercado (es decir, retirados, escasos o ilegales) (Liang & Mackey, 2012; Mackey & Liang, 2011). Las FIOs proporcionan un acceso ilimitado a los medicamentos de prescripción e incluso a sustancias sometidas a control, lo que

provoca una gran preocupación por los medicamentos de baja calidad, las falsificaciones y la integridad de la cadena de suministro (Jena & Goldman, 2011). De hecho, pruebas independientes han revelado que los medicamentos suelen incluir el principio activo, pero en dosis incorrectas y potencialmente peligrosas (Leontiadis, Moore, & Christin, 2011).

Aun así, ha sido un reto para los consumidores averiguar el grado de fiabilidad, legitimidad y respeto a las normas que tienen las distintas farmacias online (Pharmaceutical Commerce, 2017). Las FIOs pueden tener un aspecto similar a las legales, y la mayoría de los consumidores carecen de experiencia para diferenciar los medicamentos de baja calidad de los "auténticos", incluso cuando los reciben. Además, como hay un número abrumador de FIOs, la búsqueda de medicamentos en los motores de búsqueda suele llevar a los consumidores a las mismas. Por último, el 95% de los encuestados en EE.UU. desconocía la existencia de programas de certificación que diferencian las farmacias legales de las ilegales. Para complicar aún más este cálculo, las FIO utilizan muchos tipos de certificaciones, incluidos sellos falsificados e información de licencias y acreditaciones fraudulentas, que pueden llevar a los consumidores a una falsa sensación de seguridad (Mackey y Nayyar, 2016). La amplia naturaleza de este contexto lo convierte en un gran punto de referencia para el sector ilegal.

En el primer ensayo, titulado *'Mo Certifications 'Mo Problems: The Effects of Multiple Impression Management on Illegal Online Pharmacies' Visitors' (Más Certificaciones, más Problemas: Los Efectos de la Gestión de la Impresión Múltiple en los Visitantes de las Farmacias Ilegales Online*) analizo la cuestión de por qué las empresas realizan esfuerzos de gestión de impresión múltiple y, en concreto, cómo responde el público al uso de certificaciones múltiples, y cuáles son sus beneficios y costes. Sugiero que existe un doble efecto. La combinación de certificaciones conduce a la mejora de los resultados de la empresa a través de

un efecto combinatorio facilitado por la tendencia confirmatoria de la audiencia (Nickerson, 1998; Tetlock, 1983) antes de proporcionar rendimientos decrecientes debido a las redundancias de información y calidad (Lanahan & Armanios, 2018; Plummer, Allison, & Connelly, 2015; Stern, Dukerich, & Zajac, 2014; Waldrop, McCluskey, & Mittelhammer, 2017). Sin embargo, también aplico el modelo de conocimiento de la persuasión para proponer que, en un momento determinado, añadir nuevas certificaciones puede ser realmente perjudicial, ya que podría generar desconfianza. Examino los resultados de la desconfianza del público externo obtenidos del uso de múltiples certificaciones por parte de las FOI, y llego a la conclusión de que el número de certificaciones tiene un efecto en forma de U invertida sobre la desconfianza de los clientes. También examino la diversidad de certificaciones y la dispersión temporal como factores que afectan al punto de inflexión de esa relación en forma de U invertida, ya que retrasan las redundancias de información o la desconfianza. Estos resultados subrayan la importancia de explorar la reflexión cuando se estudia la gestión de la impresión, y amplían los límites de los textos sobre certificación.

En el segundo ensayo, titulado *The Problem and the Fix: A Tale of Expectations (El Problema y la Solución: Una Historia de Expectativas)*, ofrezco una nueva justificación de por qué algunas certificaciones pueden ser perjudiciales para la empresa, y ayudo a explicar los motivos por los que algunas empresas pueden decidir no hacer públicas sus certificaciones. Utilizando la teoría del incumplimiento de las expectativas, planteo que el público tiene diferentes expectativas previas sobre el comportamiento de las empresas. Para recoger las expectativas del público sobre si la seguridad de las transacciones es un problema destacado o no en las FOI, examino hasta qué punto el público las percibe como seguras en términos de seguridad de los medicamentos mediante la sustitución de atributos (Kahneman & Frederick,

2002; Shah & Oppenheimer, 2008). Dos conjuntos de características que afectan a las expectativas del público sobre la seguridad de los medicamentos son: las características del sitio web derivadas de la autorregulación y las características del visitante derivadas del comportamiento de búsqueda. El público que tiene un comportamiento de búsqueda arriesgado o acude a las FOIs que no están autorreguladas espera que esas FOI tengan importantes y significativos problemas de seguridad en las transacciones, y las certificaciones proporcionan una forma de mostrar al público que se están abordando esos problemas y que no son tan significativos como esperaban en un principio, lo que tiene como resultado un incumplimiento positivo de la expectativa y una disminución de la desconfianza. Sin embargo, es posible que el público no espere que existan problemas o que éstos sean importantes, sobre todo si la FOI está autorregulada o el usuario tiene un comportamiento de búsqueda no arriesgado. En este caso, el uso de la certificación proporciona información de la existencia del problema o de que es más significativo de lo que se esperaba originalmente, dando lugar a un incumplimiento negativo de la expectativa y a una disminución de la confianza de los consumidores. También he detectado indicios de que los esfuerzos de gestión de la impresión se ven afectados por su proximidad a los marcadores de la web o las características del usuario.

En el tercer ensayo, titulado *Going After Easy Prey: A Theory of Regulatory Enforcement, (Persiguiendo a la Presa Fácil: una Teoría del Cumplimiento del Marco Normativo)* adapto los textos sobre las estructuras de oportunidad de las empresas de los movimientos sociales a los organismos de control, y construyo un modelo más matizado sobre a quién se dirigen los organismos de control. Sugiero que los organismos de control, de forma similar a los activistas sociales, son conscientes del riesgo y del coste y, por tanto, se fijen en los recursos/capacidades que les ayudan a evaluar la estructura societaria de oportunidades y si es probable que estas

empresas cumplan con sus directivas o las ignoren (Briscoe, Chin, & Hambrick, 2014; King, 2008; Soule, 2009). Sostenemos que cumplir con los organismos de control o ignorarlos depende de si la empresa tiene recursos/capacidades difíciles de crear que proporcionan fuertes ventajas competitivas, que tendrían que ser eliminados si la empresa cumpliera con esas presiones y cesara en, o modificara, su comportamiento. Si un organismo de control se dirige a una empresa que cuenta con estos recursos distintivos, es menos probable que cambie y más probable que los ignore porque tiene más que perder que las empresas que carecen de ellos. En general, por tanto, si los organismos de control se preocupan por maximizar su recompensa dados los riesgos comparables, y si las empresas que cuentan con ventajas competitivas están menos predispuestas a cambiar y más a ignorar a los organismos de control y, por lo tanto, son relativamente más costosas de perseguir, lo que se espera es que los organismos de control sean menos propensos a dirigirse a los infractores con fuertes ventajas competitivas y recursos/capacidades significativas. Hemos comprobado lo anterior observando qué FOIs tenían más probabilidades de ser objetivo de la FDA *(Food and Drug Administration – Administración de Alimentos y Medicamentos-)*, y hemos demostrado que las FOI que lograron mayor fidelidad de los clientes, están ubicadas en palabras clave de búsqueda más populares o son más visibles, tienen menos probabilidades de ser objetivo de la FDA.

El resto de la tesis está organizado de la siguiente manera. El capítulo 2 presenta el primer ensayo de mi tesis. El capítulo 3 contiene el segundo ensayo de mi tesis. El capítulo 4 incluye el tercer ensayo de mi tesis. Por último, en el capítulo 5, finalizo la tesis con un análisis de las principales conclusiones de los tres ensayos, así como de las contribuciones teóricas y prácticas generales. También destaco una serie de limitaciones y propongo una agenda para futuras investigaciones.

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CHAPTER 2

Essay 1: 'Mo Certifications 'Mo Problems: The Effects of Multiple IM Efforts on Illegal Online Pharmacies' Visitors

Organizations engage in the use of impression management (IM) tactics to improve their perception among external audiences (Ashforth & Gibbs, 1990; Elsbach, 1994; McDonnell & King, 2013). One increasingly prevalent tactic is the use of certifications (Strick & Fenich, 2013; Wade, Porac, Pollock, & Graffin, 2006; York & Lenox, 2014). Certifications signify that a reliable third party is revealing information about the quality of organizational attributes that external audiences might not otherwise know about (King, Lenox, & Terlaak, 2005). They thus provide important signals intended to assure audiences that they are dealing with a trustworthy and reputable organization that it is taking the necessary steps to respond or fix any potential, perceived, or actual problems they might have (Carlos & Lewis, 2018; Graffin & Ward, 2010; Hiatt & Park, 2013; McDonnell & King, 2013; Pollock, Lashley, Rindova, & Han, 2019; Rao, 1994; Rindova, Williamson, Petkova, & Sever, 2005). The extant literature (exceptions include Lanahan & Armanios (2018)) has usually looked at firms with the lens of a single certification.

Interestingly, organizations often use multiple certifications. Some farms, for example, use multiple certifications that showcase their diligence in animal welfare including *Animal Welfare Approved*, *Global Animal Partnership*, and *Certified Humane certifications* (Huffman, 2016). Similarly, firms within the textile industry (e.g. Jack Wolfskin and ergobag) exhibit multiple textile-based sustainability certifications including *bluesign* and *Fair Wear* certifications. Yet, the impression management literature has been dearth on how audiences respond to the use of multiple certifications, or indeed other impression management efforts, and what their benefits and costs are.

We propose that there exists a dual effect. Combining certifications leads to improved firm outcomes through a combinatorial effect facilitated by audience confirmatory bias (Nickerson, 1998; Tetlock, 1983). After seeing the first certification, audiences scan for similar efforts (Thomas, Clark, & Gioia, 1993), react positively to finding them as it confirms what they already know (Nickerson, 1998; Palich & Bagby, 1995; Traut-Mattausch, Schulz-Hardt, Greitemeyer, & Frey, 2004), and consequently increasing the credibility of the messages. This logic is in line with prior research that implies that IM tactics and activities are additive in nature. The use of strategic noise by some organizations (Graffin, Carpenter, & Boivie, 2011) or anticipatory IM tactics (Graffin, Haleblian, & Kiley, 2016), for example, involves the obfuscation or reversal of certain types of news by pre-emptively or simultaneously releasing other forms of information about confounding events or other positive news, indicating that these tactics are at least partially combinatorial in nature. However, if there are increased benefits to multiple IM efforts, why then aren't firms using many more?

In contrast with the earlier logic, we propose that at a certain point adding further IM activities may actually be detrimental. Although some of the earlier nascent research on IM has provided significant insights into the use of cognition in IM (Busenbark, Lange, & Certo, 2017; Elsbach, Sutton, & Principe, 1998; Gardner & Martinko, 1988; Hayward & Fitza, 2017), it has been limited by the implicit assumption of isolationist tactics. We relax this assumption and posit that if external audiences are provided with multiple certifications, they may start thinking about the motives behind the use of multiple certifications. We thus incorporate the persuasion knowledge model (PKM) to explore audiences' cogitation processes. According to this framework consumers develop a specific persuasion-related knowledge structure that helps them recognize, interpret and evaluate persuasion attempts and select adequate coping strategies to

control the outcome of persuasion episodes which leads to suspicion by audiences (Friestad & Wright, 1994).

In this paper, we examine trust outcomes by external audiences resulting from the use of multiple certifications. We theorize that firms that bundle more certifications and therefore send more concurrent and congruent IM efforts, should have improved trust outcomes because of a reinforcing effect. However, after a certain point this reinforcement effect not only diminishes, but consumers also become conscious of the persuasion attempts as persuasion knowledge is activated, and start interpreting ulterior motives to persuasion agents (Campbell & Kirmani, 2000). This prompts feelings of suspicion and perceptions of being manipulated on the part of audiences, thus degrading trust outcomes. Consequently, we expect the number of certifications to have an inverted U-shaped effect on customers' trust.

To test this, we look at how the number of certifications used by illegal online pharmacies (IOPs) that cater to the US market, allow them to increase trust from potential customers. We look at IOPs because they function in very low trust environments, which suggests that gaining legitimacy is critical. The great majority of online pharmacies that cater to US audiences are illegal, and skirt both US law as well as the National Association of Boards of Pharmacy standards. One method that they employ is the use of certification on the online pharmacy's homepage to communicate messages of safety (Mackey & Nayyar, 2016), an underlying unobserved attribute that audiences might focus on more critically in this setting. The goal of these certifications is to improve outcomes of trust among potential customers. To test the efficacy of these certifications, we apply PKM alongside IM theory, and provide three predictions: (1) that there is an inverted U-shaped relationship between the number of certifications and customers' trust; (2) that the turning point in the inverted U-shaped

relationship occurs later the more diverse these certifications are (with information redundancies happening later); and (3) that the turning point in the inverted U-shaped relationship occurs later the more dispersed these certifications are (thereby reducing the probability that audiences become suspicious).

We test our hypotheses on a sample of 309 IOPs between January 2017 and June 2020 to explore how the use of certifications affects monthly bounce rate (i.e. we look at the number of people who stay on the website beyond the homepage as a proxy for trust). Supporting our theory, we find a curvilinear effect between the number of certifications and the proportion of visitors who stay beyond the homepage, showcasing that consumers are more likely to stay until they become suspicious of the number of certifications, then they opt to leave. Adding one more certification increases the likelihood of staying in the online pharmacy beyond the homepage by about 0.7 percentage points, but after 7 certifications, the proportion of visitors that stay in the website decreases by an average of 1 percentage point with the addition of each new certification. We also show that the likelihood of staying when having too many certifications can in fact reach levels lower than if no certifications were shown. IOPs that have 13 certifications or more indeed have higher bounce rates than if they had no certifications. We also show that this effect is stronger the more closely located the certifications are in the website, providing more support for our conceptual model.

Our research has the potential to make several contributions. First, research on the use of multiple IM efforts by organizations has been shockingly absent from the literature. Although some research has implied the use of multiple IM efforts (e.g. Dineen & Allen, 2016; Lanahan & Armanios, 2018), the extant literature has been silent about why firms do this. Our study aims to rectify this by looking at the benefits and costs of using multiple IM efforts. We showcase that

initial increases in IM efforts are beneficial as the efforts themselves are positively reinforced. However, we also account for the possibility that audiences needing to process and assess certifications might start considering the underlying motives, leading to suspicion about firm motives. This contributes to the literature by showcasing ways in which multiple IM tactics interact. We also contribute to certification literature by pushing back against claims that certification is a social construct that should be utilized as an IM technique only after the certification itself is discussed, endorsed, and finally legitimated through a collective understanding and acceptance among audience members (Boiral & Gendron, 2011; Carlos & Lewis, 2018; Delmas & Grant, 2014; Rao, 1994). We provide evidence that audiences might not necessarily be aware if some certifications are fully legitimized or not, and that at times, they look at the total number of certifications rather than at any individual one. We show that adding more certifications, however, might not necessarily always provide positive outcomes. Second, we contribute to the nascent literature that shows the dark side of IM (Carlos & Lewis, 2018), by providing another way in which IM can backfire, not because recipients perceive hypocrisy, but because they become suspicious of the firms' claims. Finally, this is one of the first papers to empirically look at strategies used by firms within the informal and illegal settings. Although the informal economy accounts for about 41 percent and 18 percent of developing and OECD countries' official GNI respectively (Schneider, 2002), few studies within the management literature have looked at firms within this sector (Bruton, Ireland, & Ketchen, 2012; Cannatelli, Smith, & Sydow, 2019; Darbi, Hall, & Knott, 2018; McGahan, 2012).

CONTEXT

The WHO estimates that about a third of all prescription drugs (and in some regions upward of two thirds of all prescription drugs) are counterfeit. The counterfeit, substandard, and

fake pharmaceuticals market is estimated to be worth over $400 billion a year, surpassing almost everything else in the illegal sector including prostitution, human trafficking and illegal arms sales (Scott, 2016). In fact, the majority of online pharmacies selling primarily to the US market are illegal online pharmacies. IOPs are criminalized under many laws including the FDCA and the Ryan Haight Act. One-third of participants in a survey conducted in the US by ASOP Global responded that they have" used an online pharmacy to purchase medications for themselves, a family member or someone under their care" (ASOP Global, 2017: 4).

In this paper, we use IOPs to test out how the number of certifications affects trust by external audiences. Although many consumers order drugs through online pharmacies because they offer cheaper prices (Mackey & Liang, 2011; Quon, Firszt, & Eisenberg, 2005), more convenience, and/or access to drugs that are unavailable in the market (i.e. recalled, in short supply, or illegal) (Liang & Mackey, 2012), IOPs are perceived to be unsafe especially in the following dimensions: drug safety, transaction safety, and vendor safety (FDA, 2020a; Mackey & Nayyar, 2016; Moore, Clayton, & Anderson, 2009). Consumers perceive IOPs to have drug safety risks, because access to controlled substances as well as prescription medication remain unrestricted, which makes counterfeit and low-quality drugs as well as pharmaceutical supply chain integrity real concerns (Jena & Goldman, 2011; Jena, Goldman, Foster, & Califano, 2011). Drugs from IOPs, for example, often include the active ingredient, but in improper amounts (Leontiadis, Moore, & Christin, 2011), and the FDA has indicated that at least a third of dietary supplements purchased from IOPs contain undisclosed ingredients from prescription drugs including sildenafil and others (FDA, 2020b). Concerns about transactional safety because of cybersecurity, privacy, and financial transactional risks are also valid, and reflected in a study by Kuzma (2011) that analyzed vulnerabilities in 60 online pharmacies, and determined that 80

percent had **thousands** of critical or medium-level vulnerabilities that were extremely problematic to consumers. Additionally, many illegitimate IOPs have ties with organized criminal networks and engage in a variety of illicit methods including sending out email spam and infecting computers with viruses or spyware among others, to commit financial fraud and data phishing activities (McCoy et al., 2012). Finally, there are the general retail risks that many e-commerce companies potentially face, including issues with deliveries, lost or damaged goods, delayed shipping, inability to get refunds and many others (Das, Mishra, & Cyr, 2019).

IOPs bear a significant cost dealing with this distrust. Consumers who do not trust IOPs because of concerns that their drugs might be unsafe, that their computers may be hacked or their credit card information might be stolen, or that drugs that they ordered will not arrive, among many other issues, will not explore the website beyond the homepage (i.e. will have a higher bounce rate), which will adversely affect their sales (Kim, Ferrin, & Rao, 2008). Those risks, however, are not homogenous across all IOPs, and some IOPs are perceived to have lower risks as they engage in significant IM efforts. One such effort to combat this distrust and provide more clarity about safety risks, has been for IOPs to provide third party certifications (look at Figure 1 for examples). These certifications help direct audience attention towards shared social goals and away from any illegitimate actions that might have been taken. The certifications are also valid for the most part, even as the websites themselves are not technically legal, and IOPs regularly publish and showcase a multitude of certifications. This is therefore a great context by which to test the relationships between multiple certifications and trust.

----Insert Figure 1 about here----

THEORY

To examine the impact of multiple IM tactics by IOPs on firm outcomes, we draw on arguments from IM and PKM. We first introduce how the extant literature has looked at certification. We subsequently detail the positive effects that result from using multiple certifications. We then propose PKM to explore how the use of too many certifications can lead to worse outcomes.

Certifications as an IM tactic

Organizations engage in many forms of IM tactics to try and improve their perception among external audiences (Ashforth & Gibbs, 1990; Elsbach, 1994: 199; McDonnell & King, 2013). Certifications are an increasingly prevalent way to do just that by signifying information and organizational attributes that might not be known by external audiences (King et al., 2005; Rao, 1994; York & Lenox, 2014). This provides organizations with a way to then enhance their positive perceptions (e.g. Graffin & Ward, 2010; Rao, 1994) or counter negative perceptions (Vlosky & Ozanne, 1998) by directing audience attention towards shared social goals and away from any illegitimate actions that might have been taken. Certifications are thus integral in assuring audiences that they are dealing with a trustworthy and reputable organization that is taking the necessary steps to respond or fix any potential, perceived, or actual problems they might have, and conveying information that results in greater social support as well as increased legitimacy gains (Carlos & Lewis, 2018; Elsbach, 2003; Graffin & Ward, 2010; Hiatt & Park, 2013; McDonnell & King, 2013; Pollock et al., 2019; Rao, 1994; Rindova et al., 2005). This leads to increased trust by external audiences and even an increased probability of purchasing (Jiang, Jones, & Javie, 2008; Kim & Kim, 2011).

Recent work by Lanahan and Armanios (2018) has started to note that some firms may have multiple certifications explicating some earlier work that peripherally touches on this point (e.g. Dineen & Allen, 2016; Rao, 1994). The implicit assumption there is that a single certification might not be fully effective in changing perceptions or garnering maximal legitimacy or support by external audiences. This is because if a single certification was hypothetically enough, there would be no value to any subsequent certifications. Yet organizations engage in many IM efforts concurrently (Bolino, Kacmar, Turnley, & Gilstrap, 2008), suggesting that multiple certifications are needed to align impressions and to showcase legitimacy.

Within IOPs, multiple certifications are used to alleviate concerns about safety and illegitimacy. One example is the CIPA certification, which alleviates concerns about drug safety and whether a pharmacy engages in illegitimate actions. A CIPA certificate is supposed to confirm that pharmacies must have valid physical pharmacy licenses, only sell to consumers with valid prescriptions, do not sell controlled substances, and fulfill orders only from inspected international centers. Certifications that are meant to assuage consumers about transaction safety concerns include the McAfee SECURE certification which is supposed to validate that the IOP was "tested and certified to be free of malware, viruses, phishing attacks, and other things that can harm [consumers] and [their] computer" (McAfee, 2021) and GeoTrust certification which is supposed to ensure that the IOP uses SSL, protocols "used to secure and encrypt sensitive information like credit cards, usernames, passwords, and other private data sent over the Internet" (MIT, 2021). By not showcasing this, IOPs risk a loss of legitimacy. A BBB (Better Business Bureau) certification, among others, is meant to alleviate vendor risks and influence consumers into believing that IOPs are as legitimate as other more traditional vendors. Although

the websites are technically illegal, the certifications they publish are for the most part valid. These certifications are usually provided by a third party that certifies that the website is compliant with certain practices (e.g. requiring prescriptions, encrypting data). Still, the efficacy of some certifications to influence audiences into viewing the IOP as legitimate has been debated (e.g. CIPA certification debate by Attaran & Beall, 2014; Bate et al., 2013; Horton, 2017; Monteith & Glenn, 2018; Smith, 2020). Additionally, organizations might not be able to illustratively convey the message they intend to send to external audiences properly (Bansal & Kistruck, 2006). This heterogeneity then showcases the potential value of having multiple IM efforts. What is then the impact of IOPs having multiple certifications?

The benefits of multiple certifications

Earlier work on IM tended to explore how isolated efforts influenced the decision-making process of audiences (Brennan, Guillamon-Saorin, & Pierce, 2009; Graffin et al., 2011). The underlying assumption there is that a single IM tactic is enough to perfectly draw the attention of the recipients to the positive attributes the organization wants to highlight (or conversely away from the negative attributes the organization wants to obfuscate). A single IM effort, in theory, should then lead to an alignment about social goals between the organization and the intended audiences. Yet there are likely benefits to using multiple IM efforts, as organizations rarely use isolated IM activities (Bolino et al., 2008).

Because individual tactics are effective but not perfectly so, subsequent and/or repeated use of IM tactics could provide additional validity and value. Therefore, audiences who are presented with simultaneous certifications become more receptive and more engaged to the organization's messaging. This combinatorial effect enabled by audience confirmatory bias (Nickerson, 1998; Tetlock, 1983) suggests that after seeing the first certification, audiences scan

for similar efforts (Thomas et al., 1993), react positively to finding them as it confirms what they already know (Palich & Bagby, 1995; Traut-Mattausch et al., 2004), and the message's credibility subsequently increases. This logic is in line with prior research that implies that IM tactics and activities are additive in nature. The use of strategic noise by some organizations (Graffin et al., 2011), for example, involves the obfuscation of certain types of news by pre-emptively or simultaneously releasing information about confounding events. Releasing a lot of news at around the time a focal event is happening (e.g. CEO replacement) to obscure audiences' responses suggests that IM has a partially combinatorial effect. Similarly, anticipatory IM tactics (Graffin et al., 2016) in which organizations flood audiences with positive news before a negative focal event, is meant to have an additive effect by canceling the "bad" with the "good".

However, once additional IM tactics suggest redundancies in information or quality to audiences, those tactics start to deliver diminishing marginal returns. That is because audiences are satiated with information, and reach an upper bound of informational alignment with organizations. This idea is mirrored in literatures on the diminishing returns of organizational responses towards salient issues (Bundy, Shropshire, & Buchholtz, 2013; Durand, Hawn, & Ioannou, 2019), diminishing returns towards CSR activities (Flammer, 2013), as well as diminishing returns in signaling (Higgins, Stephan, & Thursby, 2011; Ozmel, Reuer, & Gulati, 2013; Pollock, Chen, Jackson, & Hambrick, 2010; Stern, Dukerich, & Zajac, 2014).

This same logic applies for certification. Although different forms of certifications might be used to alleviate concerns about different organizational risks that external audiences might have, organizations do so to have a more generalized legitimacy conferred upon them by those audiences who assess whether these organizational actions fit with the perception they have of that organization (Elsbach & Sutton, 1992; Lanahan & Armanios, 2018; Suchman, 1995). As

audiences encounter multiple congruent certifications from the same firm, this congruence allows audiences to substantiate those claims, and amplifies its effects on legitimacy and trust (Plummer, Allison, & Connelly, 2016; Pollock et al., 2010; Stern et al., 2014). For IOPs, one important outcome of this increased trust is that it leads to more people staying on the website to further explore it. However, as these certifications start suggesting redundancies in information or quality, these benefits start providing diminishing returns (Waldrop, McCluskey, & Mittelhammer, 2017). Within IOPs, for example, having both a CIPA certification and a McAfee SECURE certification increases external audience's assessment of the safety of the IOP as both claims are amplified and validated. However, subsequently adding a BBB certification as well a GeoTrust certification provides less information, and diminishing returns start taking effect. This latent mechanism is illustrated in Figure 2a.

Persuasion knowledge model and the costs of too many certifications

Certifications are also assessed by external audiences through other behavioral and cognitive mechanisms (Bitektine, 2011; Dineen & Allen, 2016). The Persuasion Knowledge Model suggests that people are able to fathom motives of persuasion agents (Friestad & Wright, 1994). PKM explores a dyadic interaction of both an active persuasion agent (i.e. the organization) and an active persuasion target (i.e. the consumer). It assumes that consumers have intuitive theories about this dyadic interaction, and that they evaluate and cope with the persuasion attempts by the organizations (Campbell & Kirmani, 2000). According to this framework, recipients develop a specific persuasion-related knowledge structure that helps them recognize, interpret and evaluate persuasion attempts and select adequate coping strategies to control the outcome of persuasion episodes. This knowledge structure (the so-called persuasion knowledge) includes beliefs about persuasion motives (e.g. persuading recipients to buy or

change their behavior) and beliefs about persuasion tactics (e.g. appealing to emotions or deception) (Campbell & Kirmani, 2000).

Persuasion knowledge can be utilized by consumers to infer whether persuasion agents are motivated by their intention to persuade (Campbell & Kirmani, 2000). At times, consumers can presume that an organization may have an ulterior motive of persuading when interacting with them (Campbell & Kirmani, 2000), and when the persuasion knowledge is activated, it can result in a suspicion of ulterior motives (Fein, 1996; Fein, Hilton, & Miller, 1990). A suspicion of ulterior motives of persuasion agents may cause consumers to perceive them less favorably (Vonk, 1998, 1999). For example, in the case of an ingratiator and the ingratiation target, Vonk (1998) found that her subjects cogitated on whether the ingratiation target could influence the ingratiator. When they did, those subjects were suspicious of the ingratiating behavior and ascribed motives of manipulation and insincerity to the ingratiator. Consumers who then believe that they are experiencing persuasion attempts, use strategies to contend with those tactics (Campbell & Kirmani, 2008), including adjusting their understanding of the message composition (Brown & Krishna, 2004; Foreh & Grier, 2003; Shu & Carlson, 2014).

The persuasion knowledge, however, is not always accessible. It is rather thought to "hover in readiness" and is only activated when specific circumstances during a persuasion episode are met (Friestad & Wright, 1994: 10). If an ulterior motive is not very accessible, the probability of using persuasion knowledge decreases (Campbell & Kirmani, 2000). Shu and Carlson (2014) for example look at message persuasiveness and claim that only at around the fourth positive adjective or claim do persuasion targets start accessing that persuasion knowledge.

We now apply this PKM rationale into our context of certifications within IOPs. When an IOP provides a single certification to consumers, the probability that consumers cognitively assess the motives of the persuasion agent are low (but not zero), and there might not be a reason to cope with the message. This is because ulterior motives are not highly accessible in a single certification, especially if there are other possible motives (e.g. showcasing quality, emphasizing safety). Consumers would then more likely take such certifications at face value and perceive them as they were intended to.

However, with the addition of every subsequent certification, the ulterior motive becomes exponentially more highly accessible, and consumers are more likely to modify their perceptions of the IOPs by becoming more conscious of persuasion attempts and by inferring an ulterior persuasion motive (Campbell & Kirmani, 2000; Shu & Carlson, 2014). This triggers persuasion knowledge for consumers and an increase in suspicious perception not only about the certification and what it intends to portray, but also about the IOP and their legitimacy. Consumers should thus react adversely to the organization by leaving rather than staying and further exploring the website. This latent mechanism is illustrated in Figure 2b.

Both mechanisms, the logic suggesting gains and diminishing returns and the logic from the persuasion knowledge model suggesting suspicion, work simultaneously (i.e. increasing marginal diminishing returns, and an exponentially decreasing one resulting from PKM) and therefore they need to be combined. The additive combination of both latent mechanisms is illustrated in Figure 2c.

----Insert Figures 2a, 2b and 2c about here----

We thus theorize that IOPs that bundle more certifications should have better performance (i.e. more people stay beyond the homepage) because of the reinforcing effect albeit

with diminishing returns (similar to the effects seen in (Higgins et al., 2011; Ozmel et al., 2013). However, beyond a certain point more consumers become conscious of the persuasion attempts, and start detecting ulterior motives of persuasion agents (Campbell & Kirmani, 2000). This prompts suspicion on the part of the consumers thus decreasing trust outcomes by lowering the proportion of those who stay beyond the homepage. This leads to our following hypothesis:

> *H1: There is an inverted-U shaped relationship between the number of certifications illegal online pharmacies have on their homepage and the proportion of visitors that stay within the website beyond the homepage.*

Certification diversity as a moderator for the effect of multiple certifications on trust

The first mechanism in our first hypothesis which establishes redundancies (Lanahan & Armanios, 2018; Plummer et al., 2016; Stern et al., 2014), relies on one key assumption: that certifications refer to the same dimension of an attribute and that there is full congruence in the claims that are had. In this section, we relax this assumption and account for the fact that certifications may refer to attributes that are multi-dimensional. An increase in the use of certifications with divergent messages would provide more new information to external audiences. The amount of new information would mean that we should expect to see an effect on the time it takes to reach information redundancies (i.e. information redundancies happen later). On the other hand, if there is full congruence in the information being conveyed by certification, we should expect those redundancies to be reached earlier as well, as little new information is then passed.

Within IOPs, certifications are meant to provide assurances that safety concerns are being addressed. However, there are many types of safety concerns, namely: drug safety, transaction safety, and vendor safety (FDA, 2020b; Mackey & Nayyar, 2016; Moore et al., 2009). IOPs

address these concerns by providing drug safety certifications, transaction safety certifications, and vendor certifications. Although all are used to increase legitimation efforts by online pharmacies they provide slightly different messaging. Drug safety certifications, for examples, focus on the quality and the legitimacy of the pharmacy and the drugs it sells; transaction safety certifications alleviate concerns about cybersecurity, privacy issues, and financial transactional safety; and vendor certifications focus on how good the online part of an online pharmacy is. IOPs tend to use one or more of these different certifications.

Therefore, in IOPs where certifications are concentrated in terms of their topics, we expect that the marginal benefit of each additional certification is very high, but information redundancies are reached faster (meaning a steeper slope that tapers of more quickly). Conversely, in IOPs where there is certification diversity, we expect that the marginal benefit of each additional certification is a bit lower, but we should also expect that information redundancies are reached much later (meaning a slightly gentler slope that tapers off much slower). Combined with the PKM latent mechanism we should then see a flattening of the curve with a higher peak and an improved trust outcome that occurs with more certifications as illustrated by Figure 3a.

----Insert Figure 3a about here----

This gives rise to our second hypothesis:

H2: The inverted-U shaped relationship between the number of certifications and the proportion of visitors that stay within the website beyond the homepage will be steeper and peak firm-level outcomes will occur with more certifications, the more diverse certifications are.

Certification dispersion as a moderator for the effect of multiple certifications on trust

The second mechanism in our first hypothesis, PKM logic which establishes that audiences become more aware of intent and motive when multiple certifications are used (Campbell & Kirmani, 2000; Friestad & Wright, 1994), relies on one key assumption: that certifications are noticed together. In this section, we relax this assumption and account for the fact that certifications may sometimes be noticed together, but at times they are not.

Certifications (even seemingly concurrent ones) are dispersed over time. Dispersed certifications are those that are spaced out over a longer period of time, whereas concentrated certifications are ones that are sent out over a shorter period of time. The concentration and dispersion of certifications should affect the speed at which persuasion knowledge is activated by audiences (Herbst, Finkel, Allan, & Fitzsimons, 2012).

Persuasion knowledge is only activated when ulterior motives are highly accessible. The more concentrated the certifications are in time, the more likely it is that consumers become conscious of persuasion attempts, and the faster it is that they will likely activate persuasion knowledge and thereby suspicion. As certifications become more dispersed, however, accessing ulterior motives becomes less likely, and persuasion targets are less likely to change their perceptions about the firm by supposing an ulterior motive because they can be looked at as individual certifications. Because of that, persuasion knowledge may take longer to get activated. This means that suspicions of ulterior motives will take longer to get prompted. This is because ulterior motives are not highly accessible with a single certification. As a result, they are less likely to be conscious of persuasion attempts, especially if there are other possible motives (e.g. showcasing quality, emphasizing safety).

Within IOPs, certifications can be looked at as concentrated or dispersed based on the location of certifications. Those certifications that are concentrated in the header or the footer of the website are assumed to be concentrated, whereas those that span the structure of the website would be looked at as dispersed. When certifications are dispersed, we claim, persuasion knowledge will take longer to get activated. This then elongates the time before a suspicion of ulterior motives is reached. We should therefore see a steepening of the inverse U relationship as well as a rightward shift of the turning point as illustrated by Figure 3b.[3]

----Insert Figure 3b about here----

This gives rise to our third hypothesis:

H3: The inverted-U shaped relationship between the number of certifications and the proportion of visitors that will stay in the website will be steeper and peak firm-level outcomes will occur with more certifications, the more dispersed certifications are.

METHODS

Data and Sample

We get our initial sample of IOPs from the 2017 NABP's Not Recommended List (NRL). The 2017 NABP's NRL is a censured list of online pharmacies "that appear to be out of compliance with NABP patient safety and pharmacy practice standards, or applicable law" (NABP, 2020). IOPs in the NRL frequently facilitate (1) selling prescription drugs without the necessary prescriptions; (2) selling unapproved and unauthorized medication; and (3) practicing without the necessary licenses needed in all relevant jurisdictions. The list contains 10,998 websites of which only 1,052 were active at the time of our data collection in 2017. We removed

[3] For a mathematical derivation of how both the rightward shift and the steepening of the curve occurs please see the appendix in (Haans, Pieters, & He, 2016)

any duplicate websites, any websites where the primary language was not English, websites selling veterinary medication, and websites selling single drugs, and got a sample of 500 IOPs.[4]

We then collected traffic and user behavior data from Semrush for the time period, January 2017 to June 2020 for traffic coming from US visitors. We only include websites for which Semrush data was available and end up with 329 websites and 5,526 month-web observations.

We finally used the Wayback Machine in the archive.org website to track IOPs over the period from January 2017 until June 2020. We manually capture information about how the homepage in those pharmacies look like. If an online pharmacy was not crawled by the Wayback Machine for a certain month, we assess whether the capture right before and after those months look identical. If so, we assume that this is how the website looked for that month. We retain those month-web observations were this data is available and end up with a final sample of 309 websites and 5,121 month-web observations.

Measurement

Dependent variable. Our dependent variable is staying on the website beyond the homepage which we label as *stay*, and define as 1- Bounce Rate. Bounce rate indicates the proportion of visitors who leave a website with no further interactions beyond the homepage. We use this to showcase trust outcomes because it is the most visceral reaction when coming into the entrance page. Additional interaction beyond the homepage is a very important firm outcome when entering a website's homepage. An analogous example with offline stores would be passing by a store and deciding to enter or not. Those that enter will likely not be distrusting of such a store.

[4] In all these 500 websites, US visitors represented more than 90% of the traffic.

Number of Certifications: Seals in online pharmacies are forms of certifications that online pharmacies (both legal and illegal) use. These seals can take on many forms and alleviate multiple concerns. Some of these seals include association verification seals, seals about e-commerce, transaction security seals, as well as many others which try and induce legitimacy and trust. We do not distinguish between genuine and fake, or real and non-existent seals as it is virtually impossible to do. We then count seals that are in the homepage of the website.

Certification diversity. To test for diversity, we categorized the seals into one of three certification categories matching the different consumer-safety concerns: drug safety certifications, transaction safety certifications, and vendor certifications. Drug safety certifications, included any pharmacy association (e.g. CIPA or Pharmacychecker), brand (e.g. Pfizer or Roche), media outlet (e.g. New York Times or CNBC), or payment (e.g. Visa and Mastercard) seals. Transaction safety certifications are meant to alleviate concerns about cybersecurity (e.g. Hacker-free), privacy issues (e.g. McAfee or Let's Encrypt Secured), and financial transactional safety (e.g. Geotrust or BuySafe). Finally, vendor certifications focus on how good the online part of an online pharmacy is. These certifications address a large array of issues including pricing (e.g. Best Price Reviewer Rating), logistics (e.g. Royal Mail), and customer satisfaction (e.g. 100% Satisfaction guaranteed) among others. We then adapted the Herfindahl-Hirschman Index to include the following diversity measure:

$$1- ((\text{Pharma seals}/\text{seal\_number})^2 + (\text{Transaction seals}/\text{seal\_number})^2 + (\text{Ecommerce seals}/\text{seal\_number})^2)$$

Certification dispersion. To test for *dispersion*, we collected data on whether the seals were located in the header, the body, or the footer of the website's homepage. We then counted

the number of seals in each of the locations, and adapted the Herfindahl-Hirschman Index to include the following dispersion measure:

$$1- ((\text{HeaderCount}/\text{seal\_number})^2 + (\text{BodyCount}/\text{seal\_number})^2 + (\text{FooterCount}/\text{seal\_number})^2)$$

Controls. We included the following control variables. *Log(Visits)* captures the amount of visits to a websites homepage, which could be indicative of how popular a website is. We expect popularity to affect how likely it is that a user continues to navigate within the website. We also control for the *proportion of Unique Visits* since we expect that returning visitors will have lower bounce rates relative to new visitors. We thus created a proportion measure of unique visitors that equals (number of unique visitors)/(total visits). We add a control for the number of *Words on Homepage* to the extent that the amount of words on the website's homepage most likely affects how likely it is that customers leave. A more verbose homepage is more likely to have a deterring effect on end-consumers, and might increase bounce rate, as most users read only a small proportion of words on a homepage (Weinreich, Obendorf, Herder, & Mayer, 2008). More words, and potentially lower readability can adversely affect stay. We control for the *Number of Pictures.* Given the common usage behavior of scanning websites (Weinreich et al., 2008), users might be more prone to being attracted to websites with more pictures, which could decrease the rate at which they leave the website (Nielsen, 2008). We add a control for the presence of a list of *Top Products*. The list of top drugs on the homepage might affect our stay variable more positively as it becomes easier and more enticing for users to click on the list of drugs. It also is a great funnel of where users should go next. The presence of *Drug Categories* could also theoretically affect stay more positively as it becomes more engaging for users to continue to navigate within the website. It also is a great funnel of where users should go next. The presence of a *Pharmacist Picture* could be used to signal credibility which could also affect usage

behavior on the homepage of the website. Finally, we add a control for the presence of *Patient Testimonials* since this could positively affect stay as it might reassure users that the website is reliable and credible.

Estimation

To test our hypotheses, we used an OLS model[5] with clustered robust standard errors at the web level. Clustered standard errors account for heteroskedasticity as well as within cluster (i.e. web-level) correlations in the error term (Greene, 2003). Month-year dummies were included in all models to control for unobserved time-variant variables, and to account for temporality that might confound the results.

RESULTS

Table 1 shows the summary statistics and correlation matrix for the relationship between the *number of seals* with the incidence of *stay*. We calculated variance inflation factor scores for all independent and control variables, and all values were significantly below 10 (the highest being 4.18), suggesting that we should not be concerned about multicollinearity.

The *number of seals* a website has in their homepage in our sample ranges from 0 to 17. We see a good range and split in the differences of the look, feel, and content of websites. Additionally, the *stay* of websites seems to follow a Gaussian distribution around a mean value of 0.54.

----Insert Table 1 about here----

Table 2 illustrates the results of the main effect, namely that the number of seals in a website has an effect on *stay*. In model 1, only control variables were included. Three of our

[5] Although we would have preferred to use a web fixed-effects model over an OLS model, our sample does not allow for it given that there is little heterogeneity in how IOPs look like over time.

controls are statistically significant in the directions we expected them to. The *proportion of unique visitors* and the *number of words* on a homepage both decrease whether users continue to navigate through the website. The availability of *top products*, on the other hand increased the number of users staying on the website beyond the homepage. In model 2 we look at the *number of seals* that are used and *stay* and get a slightly positive and significant result (β= 0.006, p-value= 0.041). In model 3 we test for the effect of only the quadratic variable *number of seals* squared on *stay* and get a statistically insignificant result (p-value= 0.245).

----Insert Table 2 about here----

In model 4 we find support for our first hypothesis, which proposed an inverted-U shaped effect of the *number of seals* a website had on *stay*. The main effect of our number of seals variable is positive and significant (β= 0.015, p-value= 0.012), whereas the quadratic effect is negative and significant (β= -0.001, p-value= 0.033). In model 5 we do not find support for our second hypothesis, which proposed that the turning point in the inverted-U shaped effect should occur later with more *certification diversity*. Model 6, however, lends credence to our third hypothesis. We find statistically significant results that show that dispersion has a moderating effect on the squared term of *number of seals*. The coefficient of the squared *number of seals* variable is negative and significant (β= -0.002, p-value= 0.011), and the interaction effect between the squared *number of seals* and *certification dispersion* is positive and significant (β= 0.003, p-value= 0.012).

Interpretation of Results

Figures 4a and 4b provide a graphic representation of those effects. Figure 4a. shows the effects in the first hypothesis. The turning point, or the highest predicted *stay* is when a website has 7 seals. Going from no certifications to 7 certifications increases *stay* by about 6 percentage

points. Deviations from that turning point (i.e. 7 certifications) to the higher end of the certifications (which in our sample is 17 certifications) decreases expected *stay* by over 10 percentage points a massive change in trust outcomes. In Figure 4b. we show the effects of the third hypothesis. When certifications have low *dispersion* (i.e. dispersion takes a value of 0), the turning point in the relationship between the *number of seals* and *stay* happens at around 3 certifications. Expected *stay* increases by 1 percentage point when increasing the number of certifications from 0 to 3, but decreases by about 36 percentage points when the number of certifications increase from 3 to 17. As certifications become more dispersed, the inverted-U shaped relationship becomes steeper and the turning point happens later. For medium levels of *dispersion* (takes a value of 0.43), the turning point occurs at around 9 certifications, and expected *stay* increases by about 4 percentage points when increasing the number of certifications from 0 to 9, and decreases by about the same when certifications increase from 9 to 17. For high *certification dispersion* within our sample (dispersion takes a value of 1), we do not observe a turning point, and rather show what is akin to a positively linear slope.

----Insert Figures 4a and 4b about here----

To check the robustness of the U-shape for the main effect, we follow the recommendation of Lind and Mehlum (2010) and check for the linear slope of both ends of the U-shaped curve. We find statistically significant results of a steep and downward slope on the lower end of the range for the number of seals, and a steep and upward slope on the higher end of that range. To further check the existence of a U-shaped relationship (Yan, Ferraro, & Almandoz, 2019), we used the utest code in Stata proposed and developed by Lind and Mehlum (2010). The U test for the first hypothesis has a t-value of 1.79, with a p value of .037 giving additional credence to the shape of the relationship. We also tested to see if rather than an inverse

U-shaped relationship we might have an S-shaped one. We included a cubic term for the number of seals, but did not find any statistically significant results.[6]

Robustness Checks

The decision to publish certifications in an IOP might not be exogenous to our main outcome. It might be that IOPs who expect consumers to trust them less are the ones that are more likely to use such claims, pushing for the quadratic relationship. To address these reverse causality concerns we reran the analysis using a two-step estimation technique (Heckman, 1979). The instrument we used was whether the IOP obtained an SSL certificate by looking at whether the website was secured with a padlock sign in the toolbar. We manually collected that information in November 2020, and assume that if the padlock sign appears that it should appear for all prior month dyads. We argue that our instrument meets the two conditions for a valid instrument. First, it is relevant since obtaining an SSL Certificate is likely to affect the decision to publish certifications. Second, it is exogenous and should not affect our dependent variable of stay since visitors do not necessarily see the presence of an SSL certificate in the toolbar (Wu, Miller, & Garfinkel, 2006). Using this instrumental variable, we run an instrumental variables (IV) probit model in order to account for the endogenous selection of number of certification publication. In the first step we regress the dummy variable of *number of seals* (1 if the IOP has one or more certificate and 0 otherwise) on the control variables and our instrument. The first-stage F-test is over 16.7, and the instrument *padlock* has a positive and significant effect on the probability of publishing certifications suggesting that our instrument is relevant and strong. In the second step, we re-estimate the probability of *stay* as and include the inverse Mills ratio calculated from the first step (Hamilton & Nickerson, 2003). Model 1 in Table 3 includes the

[6] Results are available upon request

first stage of the Heckman estimation where we see a significant and positive effect. Models 2, 3, and 4 in Table 3 includes the inverse Mills ratio as well as the effects on hypotheses 1, 2, and 3 respectively. The coefficients have the same sign as previously shown for hypothesis 1 and 3, and remain statistically significant (model 2 at $p<0.15$ and model 3 at $p<0.05$) lending additional support to both hypotheses. Hypothesis 2 continues to have statistically insignificant coefficients.

----Insert Table 3 about here----

Limitations on the amount of information that can be processed (e.g. Miller, 1956) could be the driving force behind why users leave the website (Huang, 2000). To dispel concerns about whether cognitive complexity and information overload could be an alternative mechanism to the one proposed in this paper, we combine certifications with any other pictures found on the homepage. If information overload was indeed the driving mechanism, then the combined number of pictures and certifications should be affected in the same curvilinear way. Model 5 shows no significant effect for a curvilinear shape, providing additional support for our mechanism. We also retest using only the number of pictures while discarding the number of certifications, and similarly find no statistically significant relationship.[7]

In addition, we also performed a robustness test to rule out possible biases with our measure of *stay*. Very high or very low bounce rates can be attributed to things other than usage activity. Bot activity can skew bounce rate numbers (and therefore stay numbers) because bot traffic may have extreme bounce rates of 0 percent or 100 percent (Cameron-Kitchen, 2016). Additionally, misconfigured Analytics are quite common in websites that track usage behavior, and can provide faulty high or low bounce rates. Issues such as the inclusion of multiple instances of the Analytics installed on the same homepage, the tracking code installed some

[7] Results are available upon request.

place it is not supposed to be, as well as other code conflicts all lead to this misconfiguration (Cameron-Kitchen, 2016). To dispel concerns about outlier bounce rates of 0 and 1, we dropped those observations from our sample, and obtained similar results as shown in models 6, 7, and 8 in Table 3. We also redo the test dropping observations where stay is below 10 percent or above 90 percent, and find similar results as well.[8]

DISCUSSION

The purpose of this paper was to assess how firm outcomes would be affected through the usage of multiple certifications. We drew on the additive effect in IM theory alongside the persuasion knowledge model to predict that there was a curvilinear (inverse-U shape) relationship between the number of certifications and firm outcomes. We also predicted that this relationship would be affected the more dispersed certifications were.

We find compelling evidence through our empirical results that there is indeed a curvilinear effect between certifications and organization outcomes. Organizations obtain positive outcomes from audiences early on when there are fewer certifications. However, after a certain point this reinforcement effect not only diminishes, but starts providing worse outcomes (even relative to no certification) as consumers become conscious of the persuasion attempts, and start detecting ulterior motives of persuasion agents (Campbell & Kirmani, 2008). This prompts suspicion on the part of the signal recipients thus degrading firm outcomes. To further tease out the suspicion mechanism, we find further indications that in cases where certifications are highly dispersed (in our tests spatially but theoretically temporal effects should hold as well), suspicion occurs much later relative to when certifications are highly concentrated.

[8] Results are available upon request

Theory and Research Implications

Our study has implications for several streams of research. First, we contribute to the IM literature by addressing the growing theoretical recognition that "it is not enough to look at individual IM techniques in isolation," (Brennan et al., 2009: 813). IM activities rarely occur in isolation, and an understanding of how different IM activities interact is paramount. Although some research has implied the use of multiple IM efforts (e.g. Dineen & Allen, 2016; Lanahan & Armanios, 2018), the extant literature has been silent about why firms do this. Our study aims to rectify this by looking at the benefits and costs of using multiple IM efforts. We showcase that initial increases in IM efforts are beneficial as the efforts themselves are positively reinforced. However, we also account for the possibility that audiences needing to process and assess certifications might start considering the underlying motives, leading to suspicion about firm motives. This contributes to the literature by showcasing ways in which multiple IM tactics interact.

Although earlier overtures to account for this by looking at strategic noise (Graffin et al., 2011) or by exploring anticipatory IM (Elsbach et al., 1998; Graffin et al., 2016) are a start, the interaction of different IM activities especially in complex information environments is a black box. In this paper we focus on audience responses to multiple simultaneous certifications and show that although firm outcomes initially improve, those outcomes deteriorate as audiences cogitate about the meaning behind those certifications and start becoming suspicious. We believe that this opens new doors and may provide outsized insights when thinking about the credibility of those efforts.

Second, we contribute to the nascent literature that shows the dark side of IM (Carlos & Lewis, 2018), by providing another way in which IM can backfire; not because recipients

perceive hypocrisy, but because they become suspicious of firms' claims. Perceptions of hypocrisy by audiences entail that there is a mismatch between what a firm currently claims and some of their prior actions (Carlos & Lewis, 2018). Firms are then duly punished as a result. On the other hand, consumers are primed with persuasion knowledge. However, it is not always accessible, and rather hovers in readiness, activated only when specific circumstances during a persuasion episode are met (Friestad & Wright, 1994). Firms are thus rewarded for their IM initiatives up to a certain point (in contrast with the process of hypocrisy).

Third, we show how the persuasion knowledge model could be applied into contexts where distrust and suspicion are especially salient. In particular we show how the benefits of certification for IOPs are diminished once persuasion attempts are triggered. This provides additional support to the idea that persuasion concerns are tangible challenges for firms trying to increase trust by audiences. This also provides us with a new boundary condition for IM initiatives where benefits are naturally limited by when individual and collective persuasion knowledge is triggered.

Fourth, we contribute to the certification literature. Prior research has claimed that certification is a social construct and should be utilized as an IM technique only after the seal itself is discussed, endorsed, and finally legitimated through a collective understanding and acceptance among audience members (Boiral & Gendron, 2011; Carlos & Lewis, 2018; Delmas & Grant, 2014; Rao, 1994). In this paper, we show that any single certification might not necessarily matter. This does not mean that there is no value in certifications. Rather we demonstrate that the legitimacy of the individual certification sometimes matters less than the total amount of bundled certifications that are used (i.e. strength in numbers at least to a certain extent).

Finally, this is one of the first papers to empirically look at strategies used by firms within the informal and illegal settings. Although the informal economy accounts for about 41 percent and 18 percent of developing and OECD countries' official GNI respectively (Schneider, 2002), few studies within the management literature have looked at firms within this sector (Bruton et al., 2012; Cannatelli et al., 2019; Darbi et al., 2018; McGahan, 2012), mostly due to the difficulty of collecting data about illegal activities. We also showcase the importance of looking at such a setting, as looking at the illegal sector can provide more opportunities to inform the wider management literature.

Managerial and Policy Implications

There are also managerial and policy implications that result from our research. First, it is not necessarily clear whether audiences are able to distinguish amongst the different certifications. IOP audiences seem to be agnostic about any individual certification, and respond more to the total number of certifications that an IOP has. This mirrors anecdotal evidence in the offline world. Would a supermarket customer, for example, understand what an ISO9000 certification entails? This is especially important because many of the voluntary certification programs are expensive to set up and maintain (Humphries & Kainer, 2006; Leung, Chan, & Lee, 1999), and it might be more advantageous and economical for the majority of firms to get a larger number of cheaper and easier to obtain certifications.

This also suggests that certifying bodies including governments, industry associations, and non-profits need to educate not only those who seek to get their certification, but also the general public about what their certifications mean. Having more audiences understand the certification process and its importance could be one of the few ways in which an individual certification might be more beneficial than the collective number. Additionally, the multiplicity

of certification bodies could be detrimental to all, and there might be value in certification consolidation by at least the big players. Although some initiatives like the ISEAL Alliance are already doing this, other players in the region could benefit from such consolidation.

Finally, there has been an expectation with firms that 'more is better' (Pollock et al., 2010). More IM is thought to be better. In this paper, however, we show instances where 'more is worse' and where performance metrics are affected as a result. Our findings outline a potential reason for why some certification or other IM initiatives might fail. Our study suggests that being cognizant of when customers are themselves cognizant could help in alleviating this issue.

Limitations and Future Directions

We acknowledge that our paper has certain limitations. First, although the IOP context is a very rich one, and one in which certifications seem to matter greatly, it is a setting in which there are low amounts of trust. We believe that our theoretical model and conclusions may be generalizable in low-trust environments and settings in both the micro- and macro-levels. For example, one might be impressed by interviewing an unknown employee with a few titles (e.g. CFA, CPA, PhD), but skepticism might be triggered if they have an alphabet soup of titles before their name instead. Similarly, skepticism might be triggered by a street vendor who indicates an inordinate amount of times that their cart is clean. However, more work is needed to understand whether distrust and suspicion also play a role in high trust environments and settings. We are unsure if the persuasion knowledge model mechanism would be activated in such settings. Would, for example, a longstanding social media company trigger skepticism on the part of consumers the more certifications related to privacy they had? We suggest that looking at such a high-trust setting would provide a fruitful direction for future research. Additionally,

understanding what could help to slow down or stop persuasion knowledge and subsequently skepticism from being triggered could be a very interesting avenue of research.

A second limitation is that although there are many different IM tactics that could be used, we focused solely on certifications. It very well could be the case that IOPs or other firms use tactics other than certifications, or that they combine different IM activities alongside certifications. If that is the case, this could delay or speed up the point at which suspicion could be triggered. This suggests that similar studies for IM activity other than certifications, and looking at how such signals might interact with certifications are warranted.

A final limitation is that within our context we were unable to use performance metrics other than stay (i.e. bounce rate). We think this was a good measure given that the reaction to certification could be immediate, and staying on the homepage measures that trust (or lack thereof). However, understanding how that affects firms' performances in other ways is an important endeavor. In our context, for example, an important consideration would be how IOP sales and profitability metrics are affected by the number of certifications they have. Organizations might also better track and be more cognizant of such measures, which could provide scholars with a wealth of data to further explore these issues.

Our paper attempted to shed light on the benefits and costs of using certifications by exploring how consumers cogitated about the information they received from those certifications. We believe this provides a more enriching view by which to understand how multiple IM activities are also received. We hope that future research will keep exploring this practically salient and theoretically relevant topic.

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Figure 1. Examples of different types of seals

Figure 2. Latent mechanism behind H1

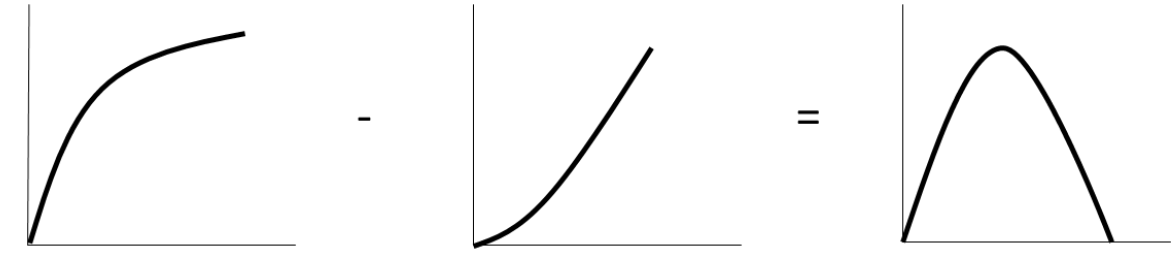

Figure 3.

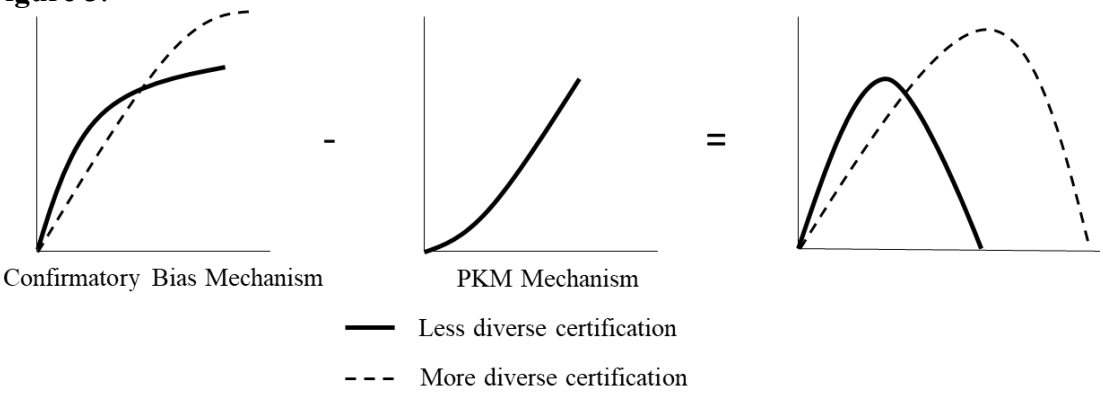

Figure 3a. Latent mechanism behind H2

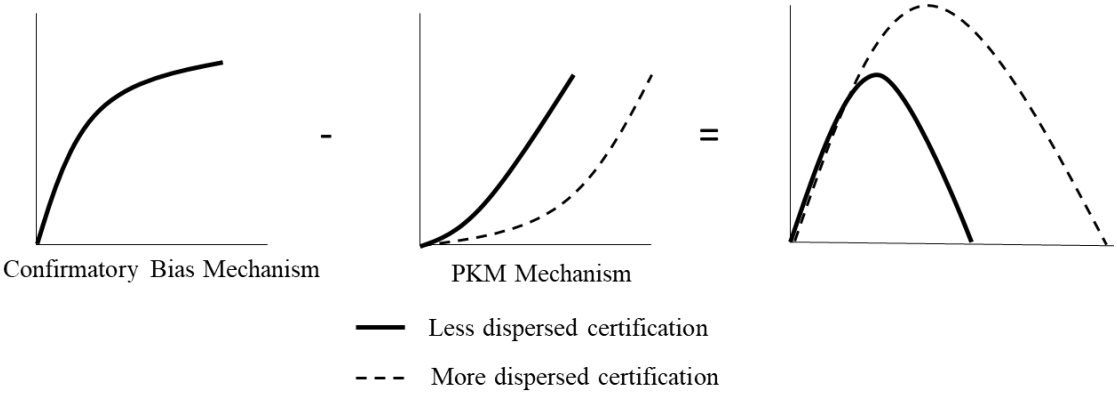

Figure 3b. Latent mechanism behind H3

Figure 4.

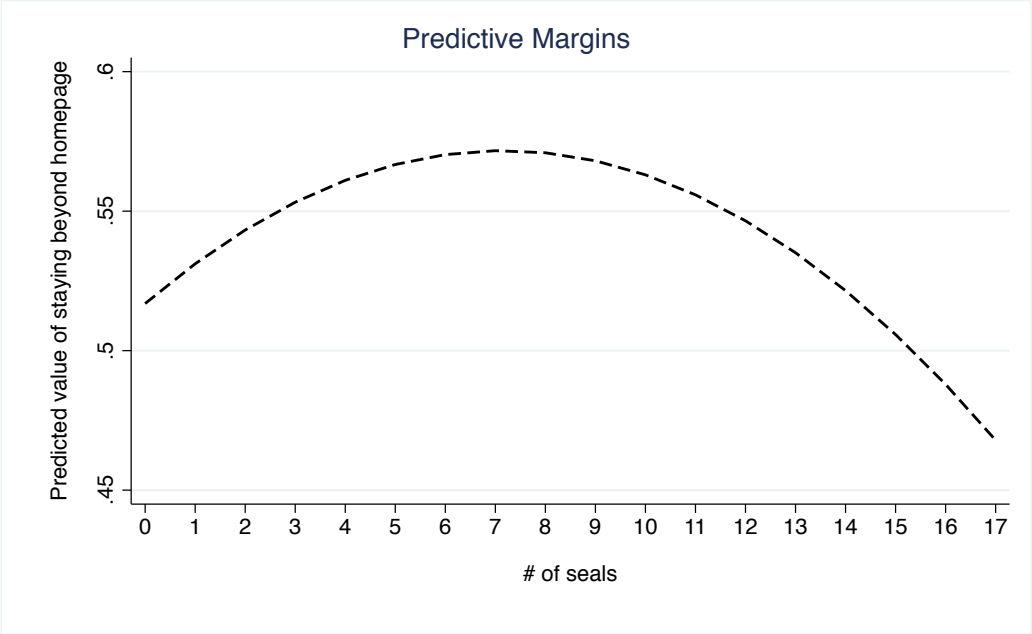

Figure 4a: Graphic representation of H1- Effect of number of seals on stay

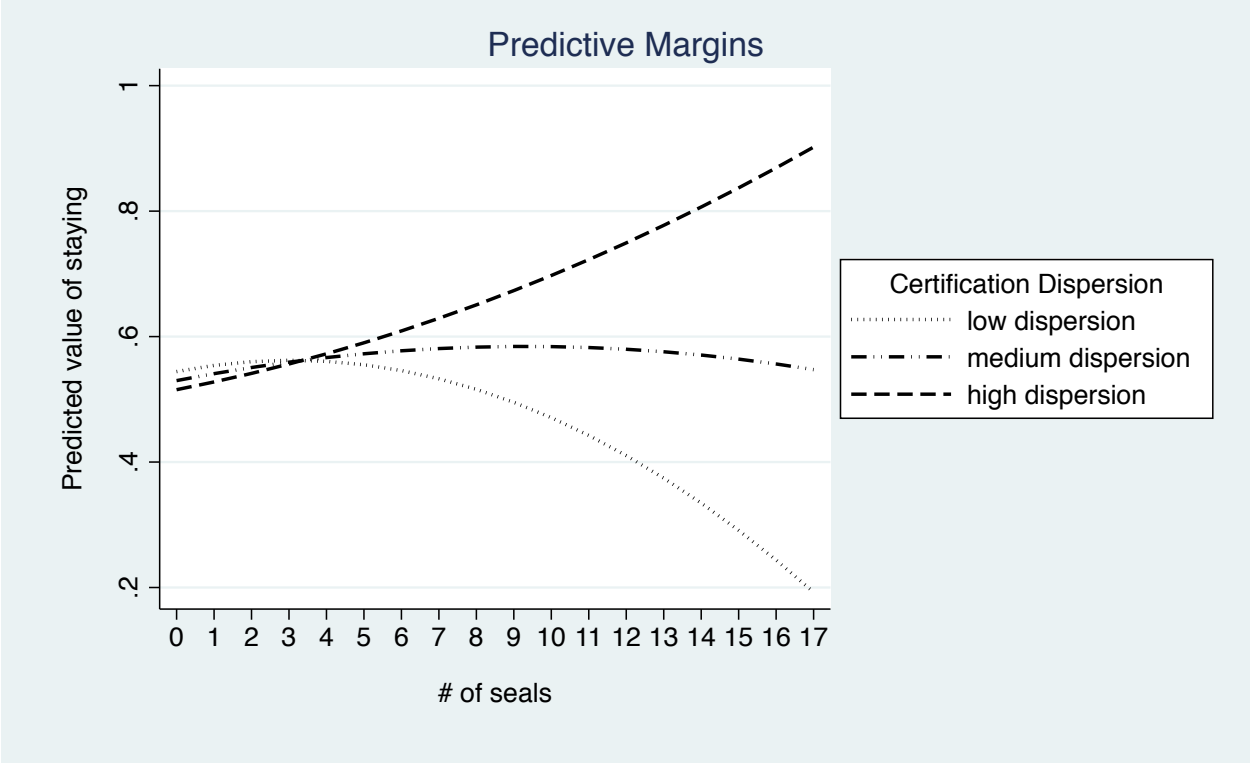

Figure 4b. Graphic representation of H3- Moderating effect of certification dispersion on the main effect

Table 1. Descriptive statistics and correlation matrix

Variables	Obs.	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Stay	5,142	.54	.33	1.00												
(2) Number of seals	5,530	2.45	2.9	0.05*	1.00											
(3) Number of seals^2	5,530	14.41	27.63	0.02	0.90*	1.00										
(4) Certification diversity	5,530	.62	.38	-0.07*	-0.42*	-0.19*	1.00									
(5) Certification dispersion	5,530	.49	.46	-0.06*	-0.58*	-0.30*	0.87*	1.00								
(6) Log (Visits)	5,142	7.94	1.54	0.11*	0.19*	0.10*	-0.16*	-0.21*	1.00							
(7) Percentage unique visitors	5,142	.78	.23	-0.19*	0.01	0.02	0.05*	0.04*	-0.46*	1.00						
(8) Words in homepage	5,509	1,094.0	1,128.3	-0.04*	-0.11*	-0.06*	0.17*	0.16*	0.09*	-0.05*	1.00					
(9) Number of pictures	5,530	7.19	14.5	0.01	0.20*	0.15*	-0.19*	-0.15*	-0.03*	-0.03	0.04*	1.00				
(10) Top products	5,530	.57	.5	0.03*	0.00	0.08*	0.17*	0.20*	-0.04*	-0.04*	0.25*	0.05*	1.00			
(11) Drug categories	5,530	.42	.49	-0.03	0.22*	0.19*	-0.09*	-0.07*	-0.14*	0.04*	0.21*	0.33*	0.30*	1.00		
(12) Picture of pharmacist	5,530	.38	.48	0.01	0.00	0.05*	0.04*	0.08*	-0.17*	0.05*	0.04*	0.14*	0.13*	0.04*	1.00	
(13) Patient testimonials	5,530	.24	.42	-0.01	0.00	0.04*	-0.10*	-0.02	0.02	-0.04*	0.06*	0.00	0.11*	0.10*	0.15*	1.00

* $p<0.05$

Table 2. Main effects regression results

	Model 1	Model 2	Model 3	Model 4 (H1)	Model 5 (H2)	Model 6 (H3)
Log (visits)	0.008	0.005	0.007	0.004	0.003	0.003
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Percentage of unique visits	-0.239***	-0.248***	-0.243***	-0.250***	-0.248***	-0.249***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Words in homepage	-0.000*	-0.000*	-0.000*	-0.000+	-0.000+	-0.000+
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of pictures	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	-0.000	(0.000)
Top products	0.033+	0.034+	0.032+	0.039*	0.044*	0.038+
	(0.019)	(0.019)	(0.019)	(0.019)	(0.020)	(0.020)
Drug categories	-0.017	-0.025	-0.02	-0.028	-0.027	-0.027
	(0.021)	(0.022)	(0.021)	(0.021)	(0.021)	(0.021)
Picture of the pharmacist	0.017	0.015	0.015	0.018	0.017	0.017
	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)	(0.018)
Patient testimonials	-0.017	-0.016	-0.017	-0.013	-0.022	-0.019
	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	(0.020)
Number of seals		0.006*		**0.015***	0.007	0.012
		(0.003)		**(0.006)**	(0.007)	(0.009)
Number of seals^2			0.000	**-0.001***	-0.002	-0.002*
			(0.000)	**(0.001)**	(0.001)	(0.001)
Certification diversity					-0.062+	
					(0.035)	
Number of seals^2 × Certification diversity					**0.002**	
					(0.002)	
Certification dispersion						-0.034
						(0.034)
Number of seals^2 × Certification dispersion						**0.003***
						(0.001)
Constant	0.718***	0.738***	0.726***	0.741***	0.797***	0.775***
	(0.067)	(0.067)	(0.067)	(0.066)	(0.069)	(0.068)
Month dummies	YES	YES	YES	YES	YES	YES
Observations	5,121	5,121	5,121	5,121	5,121	5,121
Websites	305	305	305	305	305	305
R-Squared	0.052	0.054	0.053	0.056	0.059	0.059
F-Statistic	3.788***	3.892***	3.759***	3.964***	4.094***	4.026***

Clustered standard errors are in parenthesis
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 3. Robustness checks

	Heckman 2 steps w/ IV: SSL certificate				No stay of 0 or 1			
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
DV	Seals	Stay	Stay	Stay	Stay	Stay	Stay	Stay
Log (visits)	0.287***	0.005	0.002	0.003	0.005	0.011+	0.010+	0.010+
	(0.018)	(0.007)	(0.007)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)
Percentage of unique visits	0.596***	-0.264***	-0.266***	-0.265***	-0.248***	-0.183***	-0.180***	-0.181***
	(0.106)	(0.036)	(0.036)	(0.036)	(0.031)	(0.024)	(0.024)	(0.023)
Words in homepage	-0.000***	-0.000*	-0.000	-0.000+	-0.000*	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of pictures	0.019***	-0.000	-0.000	-0.000	-0.005	0.000	0.000	0.000
	(0.002)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)
Top products	-0.572***	0.050*	0.063**	0.054*	0.036+	0.034*	0.038*	0.035*
	(0.047)	(0.022)	(0.022)	(0.023)	(0.020)	(0.016)	(0.016)	(0.017)
Drug categories	0.817***	-0.026	-0.030	-0.027	-0.028	-0.037*	-0.036*	-0.036+
	(0.057)	(0.023)	(0.022)	(0.023)	(0.022)	(0.018)	(0.018)	(0.018)
Picture of the pharmacist	-0.110*	0.015	0.012	0.014	0.015	0.003	0.001	0.002
	(0.047)	(0.021)	(0.021)	(0.020)	(0.018)	(0.014)	(0.014)	(0.014)
Patient testimonials	0.125*	-0.010	-0.019	-0.017	-0.017	0.017	0.008	0.012
	(0.052)	(0.022)	(0.022)	(0.022)	(0.021)	(0.017)	(0.016)	(0.017)
SSL certification	**0.462*** **							
	(0.054)							
Inverse Mills Ratio		0.001	0.007+	0.004				
		(0.005)	(0.004)	(0.005)				
Number of seals		0.013	0.006	0.009		0.013***	0.006	0.008
		(0.008)	(0.008)	(0.009)		(0.005)	(0.005)	(0.007)
Number of seals^2		-0.001	0.001	-0.002*		-0.001*	0.000	-0.001*
		(0.001)	(0.001)	(0.001)		(0.000)	(0.001)	(0.001)
Certification diversity			**0.096** **				**0.058***	
			(0.034)				**(0.025)**	
Number of seals^2 × Certification diversity			**-0.002**				**-0.001**	
			(0.002)				**(0.001)**	
Certification dispersion				**-0.055**				**-0.035**
				(0.036)				**(0.029)**
Number of seals^2 × Certification dispersion				**0.003***				**0.002+**
				(0.001)				**(0.001)**
All images					**0.006***			
					(0.003)			
All images^2					**-0.000**			
					(0.000)			
Constant	-2.619***	0.725***	0.726***	0.783***	0.736***	0.573***	0.564***	0.604***
	(0.235)	(0.079)	(0.078)	(0.077)	(0.067)	(0.058)	(0.057)	(0.056)
Month dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,093	4,092	4,092	4,092	5,121	3,324	3,324	3,324
Websites	204	203	203	203	305	228	228	228
R-Squared		0.068	0.073	0.071	0.055	0.097	0.105	0.102
F-Statistic		3.680***	4.518***	3.974***	3.859***	5.635***	5.831***	5.705***

Clustered standard errors are in parenthesis,
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

CHAPTER 3

Essay 2: The Problem and the Fix: A Tale of Expectations

External audiences may view certain organizational behaviors or activities as problematic, and these negative perceptions result in costly consequences for organizations. Problems like toxic emissions by polluting firms or the use of child labor in a firm's supply chain, for example, are a sure way of increasing the probability that shareholders (Flammer, 2013; Reid & Toffel, 2009), NGOs (King, 2008; King & Soule, 2007; Lounsbury, Ventresca, & Hirsch, 2003), regulators (Diestre & Rajagopalan, 2011; Paternoster & Simpson, 1996), and customers (Grégoire & Fisher, 2008) will seek to punish the firm; a very costly outcome. To combat this, firms use certification as a reliable way of providing new information that the problem is being attended to and is being minimized or solved for (e.g. environmental management plan or monitoring of suppliers). This new information, then suggests to those external audiences that the problem is smaller than they had anticipated, leading to a positive re-evaluation, or in expectancy violations theory terms, a positive expectancy violation (Grégoire & Fisher, 2008). If certifications that seek to showcase that problems are being addressed and minimized are so beneficial, however, why do some firms choose not to show it?

Carlos and Lewis (2018), the only ones to our knowledge who aimed to answer that question, suggested that a fear of being perceived as hypocritical stops firms from publishing or using their certification. The risk of hypocrisy as proposed by Carlos and Lewis (2018) is for firms in which problems are expected ex-ante to be significantly large, such as firms engaging in activities that are extremely polluting, or firms in industries where slavery or child labor is ubiquitous. Audiences who perceive these companies as hypocritical do so because there is an expectation mismatch; they expect these firms are able to do more and are choosing not to.

While insightful, this does not explain why firms that are not viewed negatively or at least relatively not so negatively, as well as those that might not have the same fears about being perceived as hypocritical might still elect to not use certification (Bansal & Clelland, 2004; Bansal & Roth, 2000). Anecdotal evidence suggests the same. For example, many chocolate companies and chocolatiers who use cocoa that is 'slave free' and 'child labor free' choose not to showcase those certifications (though there is no apparent fear of hypocrisy at play). Similarly, many cosmetic companies who gained 'cruelty-free' certification because they do not test their products on animals do not showcase this certification. The extant literature has not really addressed this behavior yet.

In this study we aim to provide a novel rationale for why the use of certifications could be detrimental which may explain why many firms decide not to make it public. We adopt a broader view of the kind of information provided by certification. Specifically, we posit that certification provides two types of information: (1) that a problem exists and (2) that the firm is attending to that problem and is trying to minimize or solve it. There is, however, an implicit assumption in the extant literature that audiences homogenously expect that a problem exists. Therefore, the only new piece of information that is provided through certification according to the extant literature is that firms have solved or are trying to solve this problem. Scholars have intuited how this works through the lens of the expectancy violations theory (Burgoon, 1993). External audiences homogenously expect that the organization has a problem giving rise to negative expectancies. Organizations then seek to reduce the magnitude and valence of the negative expectancy, redirecting and reframing attention away from negative expectancies by those audiences resulting from a negative event, to positive expectancies resulting from dealing with this event, and subsequently having a smaller problem than originally expected (Graffin,

Haleblian, & Kiley, 2016). However, if audiences do not expect that a problem exists, this would mean that certifications might not only provide new information about minimizing or solving a problem, but also about the actual existence of the problem itself. Audiences who heretofore had not expected a problem to exist or that it was not necessarily worthy of being tackled, now see the magnitude of the problem as bigger than expected, leading to an expectancy violation opposite to what was intended.

Relaxing the assumption that audiences know that problems exist a priori, provides us with a more realistic understanding of the relationship between different audiences and organizations. In this paper, we posit that audiences have different ex-ante expectations about firms' behaviors. When audiences expect a firm to have significant and salient problems, certifications provide a way to showcase to audiences that the problem is being addressed and that it is not as salient as they originally expected, resulting in a positive expectancy violation. However, when audiences are not aware that a problem exists within a firm, or that the problem is not very salient, then the use of certification provides information that the problem exists or is more salient than originally expected, giving rise to a negative expectancy violation. Through both sets of expectancy violations, audiences recalibrate their impressions of the firm (Racine, Wilson, & Wynes, 2020). Where a positive expectancy violation occurs, audiences tend to look more favorably at the firm, and would be increasingly trustful (Graffin et al., 2016). On the other hand, when a negative expectancy violation occurs, audiences bring those actions to light, punish the firm in various ways, and decrease their trust of the firm (Fehr & Gächter, 2000; McDonnell & King, 2013; Vasi & King, 2012).

In this paper, we look at illegal online pharmacies (IOPs) to test how ex-ante expectations affect perceptions of certifications. Although many consumers order drugs through online

pharmacies because they offer cheaper prices, more convenience, and access to drugs that are unavailable in the market (Mackey & Liang, 2011a, 2011b; Quon, Firszt, & Eisenberg, 2005), there are still transaction safety concerns including cybersecurity, privacy, and financial transactional safety issues (Mackey & Nayyar, 2016; McCoy et al., 2012; Moore, Clayton, & Anderson, 2009). IOPs bear a significant cost dealing with this distrust. Consumers who do not trust IOPs because of concerns that their computers may be hacked or their credit card information may be stolen, will not explore the website beyond the homepage (i.e. will have a higher bounce rate), and this will decrease the amount of sales by the IOPs. An analogous example with offline stores would be passing by a store and deciding whether to enter or not. One method by which to combat this distrust, has been for IOPs to use transaction security certifications. These certifications are meant to alleviate concerns about cybersecurity, privacy issues, and financial transactional safety by trusted third parties. Customers' expectations about the magnitude of transaction safety risks, though, are likely to be heterogeneous in these contexts. We therefore rely on this context to explore how the effectiveness of certifications is contingent on audiences' expectations.

To capture audiences' expectations and within the context of IOPs whether transaction safety is a salient problem or not, we look at the extent to which visitors perceive a particular IOP as safe on a different dimension; that of drug safety. Visitors use drug safety as an anchor for transaction safety by means of attribute substitution, a way for people to make judgements and decisions by using limited amounts of information, even if just a single readily available cue (Kahneman & Frederick, 2002; Shah & Oppenheimer, 2008). Two sets of attributes that affect visitors' expectations of drug safety are (1) website characteristics derived from self-regulation and (2) visitor characteristics derived from search behavior.

First, website attributes about drug safety are heterogenous. Some IOPs showcase that they self-regulate and impose strict norms on themselves, and are considered to be safe and reliable in terms of drug safety whereas others might not. These self-regulated IOPs follow the social rules and norms for online pharmacies and comply with criteria that require valid licensure and prescriptions, operate out of a physical dispensary, refuse to sell controlled substances, and fulfill from inspected suppliers that determine that they are safe, among many other measures (NABP, 2020). In essence, these practices mirror to a large extent what the FDA requires from online pharmacies, with the caveat that importing medication is technically illegal (FDA, 2018). IOPs who do not identify as self-regulated might then not be expected to prioritize drug safety. Second, there is also heterogeneity in visitors' characteristics leading to heterogeneous expectations about drug safety. Some users visit IOPs whilst searching for quality medications, legitimate drug offerings, and non-stigmatized drugs, and therefore drug safety is considered a given. Other visitors, however, search for online pharmacies that sell scheduled drugs, that sell medication related to stigmatized conditions, and that prioritize pricing (which means that there may be doubts concerning the source of those supplies).

When visitors perceive IOPs to have a salient drug safety issue (either due to these visitors' search behavior or due to the particular IOP's self-regulatory behavior), then, we argue, they are likely to expect transaction security to be a salient problem as well. If, however, firms are perceived to follow rules and guidelines as it relates to drug safety, visitors are less likely to expect transaction safety problems. Those visitors that come with an ex-ante expectation of a transaction security problem existing will look more favorably at an organization's attempt at showcasing that they fixed the problem through the use of transactions security certifications, creating a positive expectancy violation and thereby leading to increased trust and greater

performance by having more people stay on the website to further explore it. Visitors, however, who do not expect a problem to exist, or do not expect it to be salient, will focus more on the problem than on the organization's fix creating a negative expectancy violation which leads to more distrust and worse performance by having less people stay on the website to further explore it.

Thus if U.S.-based visitors go to an IOP that they perceive to have low drug safety—either because the website shows that they are not self-regulated or the visitors are looking for online pharmacies that are antithetical to drug safety (e.g. sells scheduled drugs, sells medication related to stigmatized conditions, prioritizes price)—, finding transaction security certifications is likely to increase their trust in those IOPs by staying beyond the homepage than if no such certifications were present. Conversely, we propose that, for U.S.-based visitors who go to IOPs that they perceive as having high drug safety, the presence of transaction security certifications is likely to decrease (rather than increase) trust, leading to a lower probability that such visitors stay in the web. Finally, we propose that, if these website and visitor characteristics are the likely driver of this mechanism, then we should see that the positive or negative effect of the certifications on trust (i.e., the probability of visitors staying) depends on how salient such certifications are. Because the locations of certifications are heterogenous across IOPs, we expect the effects to be stronger the more visible/salient the certifications are.

We test our hypotheses on a sample of 230 illegal online pharmacies between January 2017 and June 2020 to explore how the use of transaction security certifications affect monthly bounce rate (i.e. the number of people who stay on the website beyond the homepage). Supporting our theory, we find that the presence of transaction security certifications increases the proportion of visitors that stay in the website by up to 13 percentage points when there are

web characteristics indicating that drug safety is a salient issue (i.e. they are not self-regulated), but decreases the proportion of visitors that stay by up to 10 percentage points when customers perceive that drug safety is not a salient issue because the website is self-regulated. Similarly, we find that the presence of transaction security certifications increases the proportion of visitors that stay in the website by up to 15 percentage points when visitors perceive that the web does not provide safe drugs (e.g., they search for cheap drugs), but decreases the proportion of visitors that stay in the website by up to 7 percentage points when visitors perceive that the web provides safe drugs (e.g., they search for high quality drugs). We also show that this effect is more pronounced the more visible and salient the certification is. We therefore see a stronger effect if the transaction security certifications are located in the header, but find no statistically significant effect when these certifications are located in the footer of the webpage.

Our research has the potential to make several theoretical contributions. First, we contribute to the certification literature, and more broadly to the impression management literature by showcasing how impression management techniques can backfire based on differently held ex-ante expectations, and that certification and more widely impression management are not a panacea fix. We demonstrate that when talking about fixing a certain problem, visitors might focus not on the fix; rather they might focus on the heretofore unexpected problem, thereby decreasing trust. This contributes to the nascent literature that shows the dark side of impression management (Carlos & Lewis, 2018), by providing another way in which impression management can backfire. Second, we combine expectancy violations theory with attribute substitution (Suchman, 1995; Suddaby, Bitektine, & Haack, 2017) to develop a model of positive and negative expectancy violations about certification. We show that the same information could be perceived as either positive or negative depending on web and

user characteristics. Third, we similarly add to the expectancy violations literature in management by showcasing that one of its central tenants- "that conforming behavior remains largely unnoticed but violations attract attention" (Zavyalova, Pfarrer, Reger, & Shapiro, 2012: 1081) - is really in the eye of the beholder. To our knowledge, this is also one of the first papers that talks about positive expectancy violations within certification and the wider impression management literature, whereas prior literature has really only looked at those tactics through negative expectancy violations lens (Graffin et al., 2016). Fourth, we showcase that perceptions of salience of certain issues can be derived from the salience perceptions of completely different issues by means of attribute substitution through firm characteristics, but also through visitor characteristics. In our paper, we demonstrate that perceptions of transaction security safety are derived from perceptions about drug safety. Finally, to our knowledge, this is one of the first papers to empirically look at strategies used by firms within the informal and illegal settings (Bruton, Ireland, & Ketchen, 2012; Cannatelli, Smith, & Sydow, 2019; Darbi, Hall, & Knott, 2018; McGahan, 2012). Specifically, we look at how firms within the informal economy utilize impression management tactics, where these tactics play an outsized role and could have existential consequences.

CONTEXT

The WHO estimates that about a third of all prescription drugs (and in some regions upward of two thirds of all prescription drugs) are counterfeit. The counterfeit, substandard, and fake pharmaceuticals market is estimated to be worth over $400 billion a year, surpassing almost everything else in the illegal sector including prostitution, human trafficking and illegal arms sales (Scott, 2016). In fact, the majority of online pharmacies selling primarily to the US market are also illegal online pharmacies. Illegal online pharmacies are criminalized under many

laws including the FDCA and the Ryan Haight Act. One-third of participants in a survey conducted in the US by ASOP Global responded that they have "used an online pharmacy to purchase medications for themselves, a family member or someone under their care" (ASOP Global, 2017: 4).

In this paper, we use illegal online pharmacies to test out how ex-ante expectations affect perceptions of impression management tactics and specifically transaction safety certifications. Although transaction security issues are important, visitors' expectations about transaction safety issues can be heterogeneous. Although many consumers order drugs through online pharmacies because they offer cheaper prices (Mackey & Liang, 2011a; Quon et al., 2005), more convenience, and/or access to drugs that are unavailable in the market (i.e. recalled, in short supply, or illegal) (Liang & Mackey, 2012; Mackey & Liang, 2011b), some consumers may perceive IOPs to be unsafe as it relates to transactional safety whereas others might not (Mackey & Nayyar, 2016; Moore et al., 2009). Concerns about cybersecurity, privacy, and financial transactional safety are valid, and reflected in a study by Kuzma (2011) that analyzed vulnerabilities in 60 online pharmacies, and determined that 80 percent had **thousands** of critical or medium-level vulnerabilities that were extremely problematic to consumers. Additionally, many illegitimate IOPs have ties with organized criminal networks and engage in a variety of illicit methods including sending out email spam and infecting computers with viruses or spyware among others, to commit financial fraud and data phishing activities (McCoy et al., 2012).

IOPs bear a significant cost dealing with this distrust. Consumers who do not trust IOPs because of concerns that their computers may be hacked, that their credit card information might be stolen, or that they might be recipients of phishing attacks will not explore the website beyond

the homepage (i.e. will have a higher bounce rate), which will adversely affect their sales (Kim, Ferrin, & Rao, 2008). One method by which to combat this distrust, and subsequently to increase the percentage of those who explore the IOP beyond the homepage and thereby sales, has been for IOPs to use transaction security certifications. These certifications are meant to alleviate concerns about cybersecurity, privacy issues, and financial transactional safety by trusted third parties (look at Figure 1 for examples). These include the likes of McAfee where a McAfee SECURE certified site is supposed to be "tested and certified to be free of malware, viruses, phishing attacks, and other things that can harm [consumers] and [their] computer" (McAfee, 2021) and GeoTrust which provide a wide range of SSL certificates, protocols "used to secure and encrypt sensitive information like credit cards, usernames, passwords, and other private data sent over the Internet" (MIT, 2021).

----Insert Figure 1 about here----

However, visitors are not homogenous in their expectations for online pharmacies. Some visitors look for online pharmacies that are safe and reliable and that respect and follow rules. Other consumers might not care so much about that, and instead order drugs through less safe IOPs because they offer cheaper prices (Quon et al., 2005), more convenience, and/or access to drugs that are unavailable in the market (i.e. recalled, in short supply, or illegal) (Liang & Mackey, 2012; Mackey & Liang, 2011a). Still, it has been challenging for consumers to figure out the degree of reliability, legitimacy, and respect for rules that different online pharmacies have (Pharmaceutical Commerce, 2017), and indeed safe and unsafe IOPs may look similar to one another. One reason this expectations heterogeneity exists is because some IOPs differentiate themselves by being self-regulated, which alleviates concerns about drug safety and whether a pharmacy engages in illegitimate actions. Being self-regulated is supposed to showcase that

pharmacies have valid physical pharmacy licenses, only sell to consumers with valid prescriptions, do not sell controlled substances, and fulfill orders only from inspected international centers. Another reason for this heterogeneity is that visitors themselves have heterogenous wants which can be determined by looking at how consumers search for the IOPs through search engines. Their keyword searches can be used to capture intentions about whether they are trying to look for a safe IOP or not and thus expectations about whether transaction security issues are salient or not.

THEORY

In this paper we seek to examine the effectiveness of using transaction security certification, an impression management tactic, in helping IOPs gain visitors' trust. To do this we first look at how expectancy violations theory explains how ex-ante expectations lead to either a positive or negative expectancy violation, and how these violations affect certification effectiveness. We then explore how web and visitor characteristics drive those ex-ante expectations by determining whether IOPs are safe on the dimension of drug safety which is used by visitors as an anchor for transaction safety through attribute substitution. We finally show that these relationships should be heightened the more salient/visible the transaction safety certifications are.

Expectancy violations theory and its impact on certification:

The use of transaction security certification by IOPs begs the question of whether and when they are effective in increasing consumer trust (i.e. decreasing bounce rate). To answer this question, we draw from expectancy violations theory which suggests that audiences hold certain sets of expectations about how actors behave (Burgoon, 1993; Burgoon, Stern, & Dillman, 1995). Burgoon (1993) makes the case that actors are expected to conform to enduring patterns

of behavior he called expectancies. When actors behave in a way that is consistent with these expectancies, this conforming behavior remains largely unnoticed. However, when audiences obtain new information that shows actors violating these expectancies, this attracts their attention (Burgoon & Hale, 1988). These expectancy violations can be either positive or negative depending on whether actors behave in a way that exceeds or violates the expectation (Graffin et al., 2016).

One way by which audiences obtain new information is through their reception of certification efforts by firms. When audiences perceive certain organizational activities or practices as a problem (e.g. toxic emissions released by energy companies and textile manufacturers' use of child labor), organizations seek to fix the issue by showcasing their attainment of certification to explain how they minimize those practices or their impact (Elsbach, 2006, 2012). Certifications signify that a reliable third party is revealing information about the quality of organizational attributes that external audiences would not else know of (King, Lenox, & Terlaak, 2005). They thus provide important signals intended to assure audiences that the organization is trustworthy and reputable, and that it is taking the necessary steps to respond or fix any potential, perceived, or actual problems they might have (Carlos & Lewis, 2018; Darnall, 2006; Elfenbein, Fisman, & McManus, 2015; King et al., 2005; McDonnell & King, 2013; Pollock, Lashley, Rindova, & Han, 2019; Rao, 1994; Rindova, Williamson, Petkova, & Sever, 2005). These efforts by organizations work because organizations seek to reduce the magnitude and valence of the negative expectancy, redirecting and reframing attention away from negative expectancies by those audiences resulting from a negative event, to positive expectancies resulting from dealing with this event (Graffin et al., 2016).

Certification, however, doesn't only provide new information that the firm is attending to a problem and is trying to minimize or solve it, but also that the problem exists in the first place and is salient enough that the firm had to act. As such, new information and signals attained by audiences through certification might not be taken by audiences as intended, and could represent either a positive or negative expectancy violation depending on a priori expectations. If there is an a priori expectation by consumers that the problem exists and is of high magnitude, then the use of certification provides a mechanism to solve this issue, creating a positive expectancy violation for consumers. This is because the problem after the tactic, is perceived to be of lower magnitude than was originally thought. If, however, there is an a priori expectation that the problem either doesn't exist or is of low magnitude, then certification provides a negative expectancy violation. This is because the problem after the tactic is presented, is perceived to be of a higher magnitude than was originally thought.

Within IOPs, a priori expectations by consumers about whether a transaction safety problem exists or not are the main driver for whether transaction security certifications are effective or not. If consumers have a priori expectations that safety problems exist and are consequential, then the use of transaction security certifications leads to a positive expectancy violation (i.e. that the problem is now of lower magnitude than expected). If consumers have a priori expectations that safety problems are either inconsequential or non-existent, then the use of transaction security certifications leads to a negative expectancy violation (i.e. that the problem is now of higher magnitude than expected). Put another way, if visitors perceive online pharmacies to be unsafe, then then they focus on the 'fix', and if they perceive them to be safe then they focus on the 'problem'.

In some instances, expectations about transaction safety being a problem will be salient, and in others they will not. To capture visitors' expectations about whether transaction safety is a salient problem or not, we look at the extent to which visitors perceive a particular IOP as safe on a different dimension; that of drug safety. Given the limited cognitive resources to acquire and process all available information, consumers are usually unable to determine whether IOPs are safe in terms of transaction security or not (Pharmaceutical Commerce, 2017). Visitors thus use drug safety as an anchor for transaction safety by means of attribute substitution, a way for people to make judgements and decisions by using limited amounts of information, even if just a single readily available cue (Kahneman & Frederick, 2002; Shah & Oppenheimer, 2008). Thus, expectations about transaction risks being high or low are driven by visitor perceptions about how safe the online pharmacy is in terms of how it purchases/handles/provides the drugs it offers. When customers perceive an online pharmacy is safe in terms of its drug-related activities, they are likely to expect low transaction issues. Conversely, when they perceive an online pharmacy to be less safe in its drug-related activities, they are more likely to expect more transaction security issues. Customer perceptions about the drug safety of an IOP show variance across: websites (the same customer may perceive different websites differently) and visitors (the same website may be perceived differently by different visitors). In the following sections we explore this heterogeneity across websites and across visitors.

Customer perceptions about drug safety depend on web characteristics.

Website characteristics about drug safety are heterogenous. Some IOPs showcase that they are self-regulated by, and are considered to be safe and reliable in terms of drug safety whereas others might not. Overarchingly, self-regulated firms indulge in a multitude of self-imposed attempts to establish rule-based constraints on their behaviors (Graham & Woods, 2006). Firms

who self-regulate use codes of conduct (Bartley, 2007), have management standards (Delmas & Toffel, 2008; King & Lenox, 2000), are reputable, and follow rules and regulations (Edelman, 1992). Within our context, self-regulated IOPs follow the social rules and norms for online pharmacies and comply with criteria that require valid licensure and prescriptions, operate out of a physical dispensary, refuse to sell controlled substances, and fulfill from inspected suppliers that determine that they are safe, among other measures (NABP, 2020). In essence, these practices mirror to a large extent what the FDA require from online pharmacies, with the caveat that importing medication is technically illegal (FDA, 2018). IOPs who do not identify as self-regulated might then not be expected to prioritize drug safety.

Visitors who thus enter IOPs and find that they are not self-regulated assume that transaction safety problems exist and are of a significant magnitude. Therefore, any attempts to showcase a solution by publishing one or more transaction security certifications are looked at favorably, with the focus on the solution rather than on the problem, resulting in positive expectancy violations. Those, however, who do find that IOPs are self-regulated do not expect problems to exist, and any "fixes" highlight the resultant problem instead, giving rise to negative expectancy violations. Where a positive expectancy violation occurs, visitors tend to look more favorably at the firm, and would be more trustful of it (Graffin et al., 2016) leading to an increase in the number of visitors who stay on the website to further explore it, whereas when a negative expectancy violation occurs, visitors become less trustful (Fehr & Gächter, 2000; McDonnell & King, 2013; Vasi & King, 2012) leading to a decrease in the number of visitors who stay on the website to further explore it. This gives rise to our first hypothesis:

> *H1: The presence of transaction security certifications should <u>increase</u> visitors' trust if IOPs are not self-regulated, and should <u>decrease</u> visitors' trust if IOPs are self-regulated.*

Customer perceptions about drug safety depend on visitor characteristics.

There is also heterogeneity in terms of visitor characteristics. In this section, we suggest that visitors might find the issues of safety salient or not based on their search behavior. Some users visit IOPs while searching for quality medications, legitimate drug offerings, and non-stigmatized drugs. Other visitors, however, look for online pharmacies that sell scheduled drugs, that sell medication related to stigmatized conditions, and that prioritize pricing (meaning that there may be doubts concerning the source of those supplies). These perceptions about drug safety drive expectations about transaction risks being high or low. When customers perceive an online pharmacy is safe in terms of its drug-related activities, they are likely to expect low transaction issues. Conversely, when they perceive an online pharmacy to be less safe in its drug-related activities, they are more likely to expect more transaction security issues.

Thus, visitors who go to IOPs with an ex-ante expectation of a problem existing, will look more favorably at an organization's attempt to fix the problem by providing a number of certifications, creating a positive expectancy violation. On the other hand, visitors who go to IOPs and do not expect a problem to exist, or do not expect the magnitude of a problem to be worth fixing, will focus more on the problem than on the organization's fix creating a negative expectancy violation. Positive expectancy violations generate positive emotional responses whereas negative expectancy violations "generate negative emotional responses and create cognitive dissonance by altering individuals' views of the way things should be" (Zavyalova, et al., 2012: 1082). Through both sets of expectancy violations visitors recalibrate their impressions of the firm (Taylor, 1991). Where a positive expectancy violation occurs, visitors tend to look more favorably at the firm, and would be increasingly trustful (Graffin et al., 2016) leading to an

increase in the number of visitors who stay on the website to further explore it. On the other hand, when a negative expectancy violation occurs, visitors bring those actions to light, decrease their trust in the firm, and punish the firm in various ways (Fehr & Gächter, 2000; McDonnell & King, 2013; Vasi & King, 2012). This gives rise to our second hypothesis:

> *H2: The presence of a transaction security certification should increase visitors' trust if IOPs' visitors were searching for unsafe drugs, and should decrease visitors' trust if IOPs' visitors were searching for safe drugs.*

Heightened customer expectancy violations.

For customer expectations dependent on website or user characteristics, we posit that both positive and negative expectancy violations should be heightened if transaction security certifications are more visible and more salient. If transaction security certifications are easily visible and more salient once a customer goes into a self-regulated IOP, then we should see visitors react more strongly to the negative expectancy violation. Similarly, if transaction security certifications are easy to spot and are seen right after the search is commenced then we should see visitors react in the same way (i.e. certifications should increase visitors' trust if they perceive safety issues to be salient, and should decrease visitors' trust if they do not perceive safety issues to be salient). If, however, the certifications are less visible and salient, then it is less likely for an expectancy violation related to that certification to occur, and we should therefore not find such an effect. Within websites, certifications are most visible when they are on the top of the page, and least visible when they are placed in the bottom. We therefore expect that we should prominently see the effects we see in the first and second hypotheses when the certification is placed on the top of the page (i.e. the header of the website), and should not see

those effects if the certifications were placed at the bottom of the page (i.e. the footer of the website). This gives rise to our third and fourth hypotheses:

H3: The visibility/salience of the transaction security certification will strengthen the effect proposed in H1.

H4: The visibility/salience of the transaction security certification will strengthen the effect proposed in H1.

METHODS

Data and Sample

We get our initial sample of illegal online pharmacies from the 2017 NABP's Not Recommended List (NRL). The 2017 NABP's NRL is a censured list of online pharmacies "that appear to be out of compliance with NABP patient safety and pharmacy practice standards, or applicable law" (NABP, 2020). IOPs in the NRL frequently facilitate (1) selling prescription drugs without the necessary prescriptions; (2) selling unapproved and unauthorized medication; and (3) practicing without the necessary licenses needed in all relevant jurisdictions. The list contains 10,998 websites of which only 1,052 were active at the time of our data collection in 2017. We removed any duplicate websites, any websites where the primary language was not English, websites selling veterinary medication, and websites selling single drugs, and got a sample of 500 illegal online pharmacies.

We then collected traffic and user behavior data from Semrush for the time period, January 2017 to June 2020 for traffic coming from US visitors. We only include websites for which Semrush data was available and end up with 329 websites and 5,526 month-web observations. We also used the Wayback Machine in the archive.org website to track illegal online pharmacies over the period from January 2017 until June 2020. We manually capture

information about how the homepage in those pharmacies look like. If an online pharmacy was not crawled by the Wayback Machine for a certain month, we assess whether the capture right before and after those months look identical. If so, we assume that this is how the website looked for that month. We retain those month-web observations where this data is available and end up with a sample 309 IOPs and 5,121 month-web observations.

We subsequently collected organic keyword search data from Semrush, which are the positions and keywords in which a web ranks in Google's top 100 organic search results. We use keywords that do not have 0 traffic and that bring the maximum amount of traffic to each web per month. We keep those month-web observations for which we have search data and end up with a sample of 243 websites and 4,438 month-web observations. Finally, we discard observations where keywords bringing consumers to the web are the same or nearly the same as the domain name (entailing a prior experience with the website), those search keywords that include their competitors' names, or those that we are unable to categorize. We end up with a final sample of 201 websites and 2,565 month-web observations.

Measurement

Dependent variable. Our dependent variable is staying on the website beyond the homepage which we label as *stay*, and define as 1- Bounce Rate. Bounce rate indicates the proportion of visitors who leave a website with no further interactions beyond the homepage. We use this measure as a proxy for trust, because it is a measure of whether they continue to navigate the website beyond the homepage which requires trust. An analogous example with offline stores would be passing by a store and deciding to enter or not. Those that enter will likely be trusting of such a store.

Transaction security certifications: Transaction security certifications in online pharmacies are certifications that alleviate concerns about cybersecurity, privacy issues, and financial transactional safety. Fake certifications, though existent, are rare since it is easy to check their validity (clicking on the certification usually takes visitors to the third-party certifier). We then count those certifications that are in the homepage of the website. We also distinguish whether these certifications are found in the header, body, or footer of the IOP.

Self-regulation: To test whether an IOP has the website characteristic of being self-regulated, we look at whether they are part of the Canadian International Pharmacy Association (CIPA), an association of online pharmacies that are based out of Canada and are compliant with the relevant Canadian laws (though there is significant debate about whether that is the case (e.g. Attaran & Beall, 2014; Bate et al., 2014; Horton, 2017; Monteith & Glenn, 2018)). These pharmacies cater mostly to US-based customers and have valid Canadian regulatory licenses, prescribe only to customers with valid prescriptions, do not sell controlled substances, and sell pharmaceuticals in limited quantities (Smith, 2020).

Safe search behavior: Although the extant literature has recognized that it is arduous to try to capture the perceptions of visitors as well as the socio-cognitive processes that affect assessments of legitimacy and safety (Higgins & Gulati, 2006; Pollock & Rindova, 2003), we suggest that looking at search keyword data could provide a credible venue to explore how individuals perceive drug safety. We use the top keyword in which a web ranks in Google's top 100 organic search results and that drives the maximum amount of traffic to each web per month. We subsequently categorize keywords into 11 categories. Those keywords that are Canadian in nature, mention quality, include unscheduled drugs or those drugs that are not dangerous or do

not have adverse side effects (e.g. Vigamox, Tylenol, b6 and b12 injections), or ask medical or non-medical queries that are not about stigmatized diseases (e.g., erectile dysfunction or mental diseases), which are the most representative of rouge (unsafe) IOPs, are given the value 1. Search keywords that ask for cheap drugs, include dangerous drugs that are either scheduled drugs or ones that could have severe adverse side effects (e.g. Percocet, Valium), ask for drugs without a prescription, ask for drugs or gear without qualifying their needs, or ask medical or non-medical queries about stigmatized diseases (e.g. using extenze with Viagra) are given the value 0.

Controls. We included the following control variables. *Log(Visits)* captures the amount of visits to a websites homepage, which could be indicative of how popular a website is. We expect popularity to affect how likely it is that a user continues to navigate within the website. We also control for the *Proportion of Unique Visits* since we expect that returning visitors will have lower bounce rates relative to new visitors. We thus created a proportion measure of unique visitors that equals (number of unique visitors)/(total visits). We add a control for the number of *Words on Homepage* to the extent that the amount of words on the website's homepage most likely affects how likely it is that customers leave. A more verbose homepage is more likely to have a deterring effect on end-consumers, and might increase bounce rate, as most users read only a small proportion of words on a homepage (Weinreich, Obendorf, Herder, & Mayer, 2008). More words, and potentially lower readability can adversely affect stay. We control for the *Number of Pictures.* Given the common usage behavior of scanning websites (Weinreich et al., 2008), users might be more prone to being attracted to websites with more pictures, which could decrease the rate at which they leave the website (Nielsen, 2008). We add a control for the presence of a list of *Top Products*. The list of top drugs on the homepage might affect our stay variable more positively as it becomes easier and more enticing for users to click on the list of

drugs. It also is a great funnel of where users should go next. The presence of *Drug Categories* could also theoretically affect stay more positively as it becomes more engaging for users to continue to navigate within the website. It also is a great funnel of where users should go next. The presence of a *Pharmacist Picture* could be used to signal credibility which could also affect usage behavior on the homepage of the website. We also add a control for the presence of *Patient Testimonials* since this could positively affect stay as it might reassure users that the website is reliable and credible. Finally, we control for *Percentage of Traffic* driven to the website with the given keyword for the specified period.

Estimation

To test our hypotheses, we used an OLS model[9] with clustered robust standard errors at the web level. Clustered standard errors account for heteroskedasticity as well as within cluster (i.e. web-level) correlations in the error term (Greene, 2003). Month-year dummies were included in all models to control for unobserved time-variant variables, and to account for temporality that might confound the results.

RESULTS

Table 1 shows the summary statistics and correlation matrix for the relationship between our *transaction security certification* variable and the incidence of *stay*. We calculated variance inflation factor scores for all independent and control variables, and all values were significantly below 10 (the highest being 1.55), suggesting that we should not be concerned about multicollinearity. The amount of transaction security certifications a website has in their

[9] Although we would have preferred to use a web fixed-effects model over an OLS model, our sample does not allow for it given that there is little heterogeneity in how IOPs look like over time.

homepage in our sample range from 0 to 4. Additionally, the bounce rate of websites follows a Gaussian distribution around a mean value of 0.52.

----Insert Table 1 about here----

Table 2 illustrates the results of the main effects. In model 1, only control variables were included. Five of our controls are statistically significant in the directions we expected them to. The *proportion of unique visitors* (β=-0.205, p-value= 0.000) and the number of *words on a homepage* (β=-0.000, p-value= 0.041) both decrease whether users continue to navigate the website. *Log(visits)* (β=0.015, p-value= 0.006), *availability of top products* (β=0.043, p-value= 0.025), and the *percentage of traffic* that comes from the top search keyword (β=0.002, p-value=0.000), on the other hand increased the number of users staying on the website beyond the homepage. To test for the effect in hypothesis 1, we test how *self-regulation* moderates the relationship between *transaction security certifications* and *stay*. In model 3 we look at the effect of *transaction security certifications* and *self-regulation* on *stay* without the interaction and the results suggest that there is not a statistically significant relationship between either *transaction security certifications* (β=0.010, p-value=0.201) or *self-regulation* (β=0.002, p-value= 0.920) on *stay*.

In model 4 we find support for our H1, which proposed that *self-regulation* negatively moderates *transaction security certifications.* First, the effect of *transaction security certifications* on *stay* is positive and significant (β=0.032, p-value= 0.004) as is *self-regulation* (β=0.053, p-value= 0.031). The moderating effect of *self-regulation* on *transaction security certifications*, on the other hand, is negative and significant (β= -0.054, p-value= 0.001).

----Insert Table 2 about here----

To test for the effect in hypothesis 2, we test how *safe search behavior* moderates the relationship between *transaction security certifications* and *stay*. In model 5 we look at the effect of *transaction security certifications* and *safe search behavior* on *stay* without the interaction and the results suggest that there is not a statistically significant relationship between either *transaction security certifications* (β=0.006, p-value=0.559) or *safe search behavior* (β=0.035, p-value= 0.103) on *stay*. In model 5 we find support for our second hypothesis, which proposed that *safe search behavior* negatively moderates *transaction security certifications*. The coefficient of the effect of transaction security certifications on stay is positive and statistically significant (β= 0.039, p-value= 0.004) and the coefficient of the moderator (i.e. safe search behavior on transaction security certifications) is negative and statistically significant (β=-0.055, p-value= 0.001).

Model 7 lends support to hypothesis 3, and we show that the coefficient of the effect of *transaction security certifications* in the header on *stay* is positive and statistically significant (β=0.062, p-value= 0.003) and the coefficient of the moderator (i.e. perceptions resulting from *self-regulation* on *transaction security certifications* in the header) is negative and statistically significant (β=-0.091, p-value= 0.002). However, the effect of the interaction term between *transaction security certifications* found in the footer and *self-regulation* on *stay is* not statistically significant (p-value=0.183).

Finally, Model 8 lends support to hypothesis 4, and we show that the coefficient of the effect of *transaction security certifications* in the header on *stay* is positive and statistically significant (β=0.066, p-value= 0.029) and the coefficient of the moderator (i.e. perceptions resulting from *safe search behavior* on *transaction security certifications* in the header) is negative and statistically significant (β=-0.090, p-value= 0.021). However, the effect of

transaction security certifications found in the footer on *stay* are not statistically significant (p-value=0.115) and neither is the interaction term between *transaction security certifications* found in the footer and *safe search behavior* on *stay* (p-value=0.223).

Interpretation of Results

The negative coefficient of the interaction term in model 4 is larger than the positive coefficient of *transaction security certifications* by about 0.022, meaning that *stay* decreases by 2.2 percentage points for every additional *transaction security certification* in IOPs that are *self-regulated* which supports the first hypothesis. On the other hand, the addition of each *transaction security certification* by IOPs that are not *self-regulated* increases stay by about 3.2 percentage points. Figure 2a is a graphic representation of the interaction effect showing how the predicted value of *stay* in IOPs that are *self-regulated* with no *transaction security certifications* is about 0.57 which goes down to about 0.48 once there are 4 *transaction security certifications*. Conversely, in IOPs that are not *self-regulated, stay* is at 0.52 if there are no *transaction security certifications*, and that goes up to 0.65 if there are 4 *transaction security certifications*.

----Insert Figure 2 about here----

The negative coefficient of the interaction term in model 6 is larger than the positive coefficient of *transaction security certifications* by about 0.016, meaning that *stay* decreases by 1.6 percentage points for every additional *transaction security certification* in IOPs that have users engaging in *safe search behavior* which supports the first hypothesis. On the other hand, the addition of each additional *transaction security certification* by IOPs with users that engage in risky search behavior increases stay by about 3.9 percentage points. Figure 2b is a graphic representation of the interaction effect showing how the predicted value of *stay* in IOPs with users that engage in *safe search behavior* and no *transaction security certifications* is about 0.55

which goes down to about 0.49 once there are 4 *transaction security certifications*. Conversely, in IOPs with users that engage in risky *search behavior, stay* starts at 0.49 if there are no *transaction security certifications*, and that goes up to 0.64 if there are 4 *transaction security certifications*.

Supporting hypothesis 3, the negative coefficient of the interaction term in model 7 is larger than the positive coefficient of *transaction security certifications* by about 0.029, meaning that *stay* decreases by 2.9 percentage points for every additional *transaction security certification* in the header in IOPs where users engage in *safe search behavior*. The effect of the interaction term when the certifications are in the footer of the website are non-statistically significant.

Supporting hypothesis 4, the negative coefficient of the interaction term in model 8 is larger than the positive coefficient of *transaction security certifications* by about 0.024, meaning that *stay* decreases by 2.4 percentage points for every additional *transaction security certification* in the header in IOPs where users engage in *safe search behavior*. The effect of the interaction term when the certifications are in the footer of the website are non-statistically significant.

Robustness Checks

Alternative independent variable measure: To test whether the results are similar by having a transaction security certification, rather than by the number of certifications we create a dummy variable equal to 1 if the IOP has one or more transaction security certifications and 0 otherwise. In model 1, the effect of the dummy *transaction security certification* on *stay* is positive and significant (β=0.066, p-value= 0.005). The moderating effect of *self-regulation* on the dummy *transaction security certification*, on the other hand, is negative and significant (β= -0.107, p-value= 0.003) lending additional support to hypothesis 1. In model 2 we find additional support for our second hypothesis, which proposed that *safe search behavior* negatively

moderates *transaction security certifications*. The coefficient of the effect of transaction security certifications on stay is positive and statistically significant (β= 0.069, p-value= 0.003) and the coefficient of the moderator (i.e. *safe search behavior* on *transaction security certifications*) is negative and statistically significant (β=-0.084, p-value= 0.037).[10]

----Insert Figure 3 about here----

Alternative dependent variable: Very high or very low bounce rates can be attributed to things other than usage activity. Bot activity can skew bounce rate numbers (and therefore stay numbers) because bot traffic may have extreme bounce rates of 0 percent or 100 percent (Cameron-Kitchen, 2016). Additionally, misconfigured Analytics are quite common in websites that track usage behavior, and can provide faulty high or low bounce rates. Issues such as the inclusion of multiple instances of the Analytics installed on the same homepage, the tracking code installed some place it is not supposed to be, as well as other code conflicts all lead to this misconfiguration (Cameron-Kitchen, 2016). To dispel concerns about outlier bounce rates of 0 and 1, we dropped those observations from our sample, and obtained similar results as shown in models 3 and 4. We also redo the test dropping observations where stay is below 10 percent or above 90 percent, and find similar results as well.[11]

Endogeneity: The decision to publish transaction security certifications in an IOP might not be exogenous to our main outcome. It might be that IOPs who expect consumers to trust them less are the ones that are more likely to use such certifications. To address these reverse causality concerns we reran the analysis using a two-step estimation technique (Heckman, 1979).

[10] We also perform those checks on hypotheses 3 and 4 and find similar results. Results are available upon request.
[11] Results for hypotheses 3 and 4 with the alternative dependent variable as well as results for stay above 10% and below 90% are available upon request.

The instrument we used was whether the IOP obtained an SSL certificate by looking at whether the website was secured with a *padlock* sign in the toolbar. We manually collected that information in November 2020, and assume that if the padlock sign appears that it should appear for all prior month dyads. We argue that our instrument meets the two conditions for a valid instrument. First, it is relevant since obtaining an SSL Certificate is likely to affect the decision to publish certifications. Second, it is exogenous and should not affect our dependent variable of stay since visitors do not necessarily see the presence of an SSL certificate in the toolbar (Wu, Miller, & Garfinkel, 2006). Using this instrumental variable, we run an instrumental variables (IV) probit model in order to account for the endogenous selection of transaction security certifications.

In the first step we regress the dummy variable of *transaction security certification* (1 if the IOP has one or more transaction security certifications and 0 otherwise) on the control variables and our instrument. The first-stage F-test is over 18.3 and the instrument *padlock* has a positive and significant effect on the probability of publishing transaction security certifications, suggesting that our instrument is relevant and strong. In the second step, we re-estimate the probability of stay as and include the inverse Mills ratio calculated from the first step (Hamilton & Nickerson, 2003). Model 5 in Table 3 includes the first stage of the Heckman estimation where we see a significant and positive effect. Models 6 and 7 in Table 3 includes the inverse Mills ratio as well as the interaction and the main effect similar to that of the first and second hypotheses. The coefficients have the same sign as previously shown, and remain statistically significant.

DISCUSSION

In this paper we seek to assess how different ex-ante expectations affects how audiences perceive problems and fixes of those problems. We drew on expectancy violations theory to argue that if IOPs are not self-regulated or if visitors search for unsafe drugs, then they react positively to transaction security certifications, because they view the problem being less of an issue than what was expected. If, however, IOPs are self-regulated or visitors arrive at IOPs whilst searching for safe drugs, then they would react negatively to such certifications, because the problem itself is unexpected. We also argue that this relationship should be more prominent if the transaction security certifications are more visible and salient.

We find compelling evidence that this is indeed the case. Different visitors go to IOPs with different ex-ante expectations based on either web or user characteristics. Some go into IOPs that are self-regulated or enter the by searching for safe drugs, whereas others might go to IOPs that are not self-regulated or by searching for unsafe drugs. Based on those expectations, visitors who view certifications that showcase that an IOP underwent a certain fix can trigger either a focus on the fix (when there is a positive expectancy violation) or a focus on the problem (when there is a negative expectancy violation).

To further tease out this mechanism, we find indications that in cases where such certifications are more visible and salient (i.e. the certifications are located at the header of the website), that this continues to have a strong effect. However, for certifications that are less prominently placed in the footer of the homepage (and therefore less visible and salient) this effect is not found.

Implication on Theory and Research

Our research has the potential to make several theoretical contributions. First, we contribute to the certification literature, and more broadly to the impression management literature by showcasing how certification affects different audiences differently based on differently held ex-ante expectations, and that certification and impression management are not a panacea fix. We demonstrate that when talking about fixing a certain problem, audiences might focus not on the fix; rather they might focus on the heretofore unexpected problem, thereby decreasing trust. This contributes to the nascent literature that shows the dark side of impression management (Carlos & Lewis, 2018), by providing another way in which impression management can backfire. Although Carlos and Lewis (2018) claim that impression management might not work if it is not too effective (therefore triggering feelings that the organization is hypocritical) we claim some techniques might not work it they are very effective because they bring attention to an unknown problem.

We also add to the expectancy violations literature by showcasing that one of its central tenants- that "conforming behavior remains largely unnoticed but violations attract attention" (Zavyalova et al., 2012: 1081)- is really in the eye of the beholder. Different audiences can look at the same behavior and have different ex-ante expectations. Violations to those expectations happen with different valences, even when firm behavior is constant. To our knowledge, this is also one of the first papers that talks about positive expectancy violations within certification and the wider impression management literature, whereas prior literature has really only looked at those tactics through a negative expectancy violations lens (e.g. Graffin et al., 2016).

Third, we show that illegality and safety or risk are two orthogonal constructs. We demonstrate that different audiences might view the safety or risk of the same illegal

organization differently. We also consider the fact that there are multiple dimensions of safety and showcase that perceptions of salience of certain issues can be derived from the salience perceptions of completely different issues by means of attribute substitution through firm (or in our instance web) characteristics, but also through visitor characteristics. In our paper, we demonstrate that perceptions of transaction security safety are derived from perceptions about drug safety.

Fourth, we provide a novel empirical method to test out theories that utilize user characteristics and intentions by looking at search as an antecedent towards micro-level judgments. While prior research has acknowledged that it is arduous to try to capture the perceptions of audiences as well as the socio-cognitive processes that affect audience assessments (Higgins & Gulati, 2006; Pollock & Rindova, 2003), we showcase that by using search data from search engines such as Google, scholars have the ability to track how individuals differently conceptualize judgements about different firms.

Finally, this is one of the first papers to empirically look at strategies used by firms within the informal and illegal settings. Although the informal economy accounts for about 41 percent and 18 percent of developing and OECD countries' official GNI respectively (Schneider, 2002), few studies within the management literature have looked at firms within this sector (Bruton et al., 2012; Cannatelli et al., 2019; Darbi et al., 2018; McGahan, 2012), mostly due to the difficulty of collecting data about illegal activities. We also showcase the importance of looking at such a setting, as looking at the illegal sector can provide more opportunities to inform the wider management literature.

Managerial and Policy Implications

There are also managerial and policy implications that result from our research. Firms presume that there are benefits to publicizing remedies for certain issues or having socially responsible practices. We demonstrate that at times this might not be the case, and whether it helps or harms the firm depends on consumers' ex-ante expectations. If consumers believe that the firm has major issues that need to be fixed, then publicizing the fix may be beneficial. If, however, consumers are unaware that these problems exist, then it might be better to not publicize the steps taken to resolve the issue. If, hypothetically, a popular fast-food chain was to include cruelty-free certified burgers, then audiences might start thinking about the non-cruelty-free burgers they ate. Likewise, if a large and legitimate chocolate manufacturer decides to publicize the fact that they reduced slavery in their supply chain even by 99 percent, audiences might focus on the problem of the '1 percent slavery' if they were unaware that this was an issue.

Limitations and Future Directions

We recognize that our paper has certain limitations. First, we capture user characteristics by looking only at the keyword that brought the maximal amount of traffic to the IOP. However, consumers search using a multitude of keywords to reach the website. Although we did control for traffic percentage coming from that keyword, we acknowledge the limitation. Similarly, we acknowledge that some IOP users go to the website directly without having to search through a search engine. We assume that these users are return customers and control for the proportion of unique visitors. However, we do recognize that there might be in-person referrals that do not allow us to capture safety or risk intentions.

A final limitation is that within our context we were unable to use performance metrics other than stay (i.e. bounce rate). We think this was a good measure given that the reaction to

transaction security certifications could be immediate, and staying on the homepage measures for that. However, understanding how firm performance is affected in other ways is an important endeavor. In our context an important consideration would be to look at how IOP sales and profitability metrics, among others, are affected by safety expectations and expectancy violations. Organizations might also better track and be more cognizant of such measures, which could provide scholars with a wealth of data to further explore the issue of when these certifications backfire.

Our paper attempted to shed light on the benefits and costs of using certifications by looking at how consumers perceive safety through both web and visitor characteristics. We believe that this opens avenues for future investigations, and hope that scholars continue to explore this practically salient and theoretically relevant topic.

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Figure 1. Examples of some transaction security certifications

Figure 2.

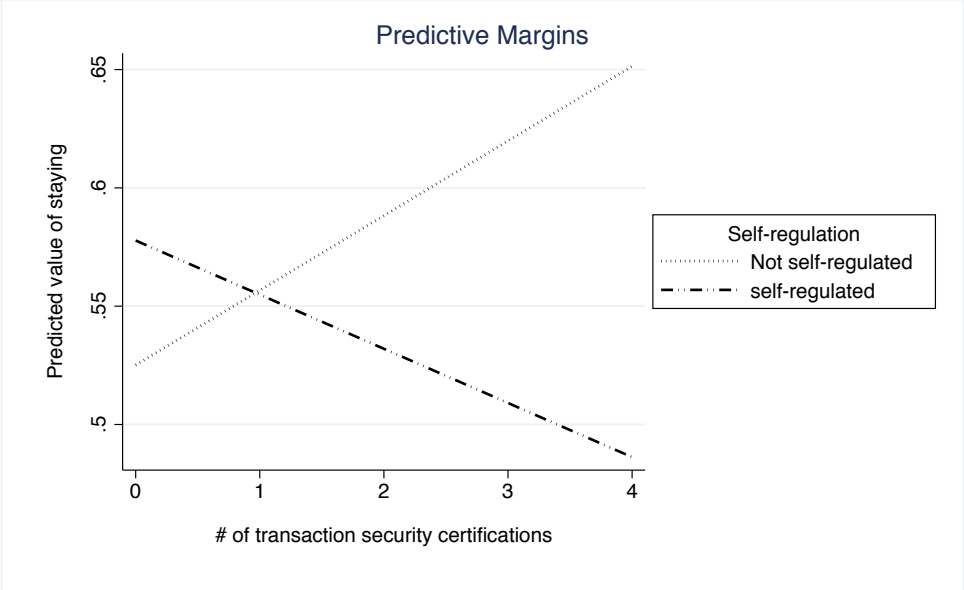

Figure 2a. Illustration of Hypothesis 1 showing the effect of transaction security certifications on stay through web-characteristics

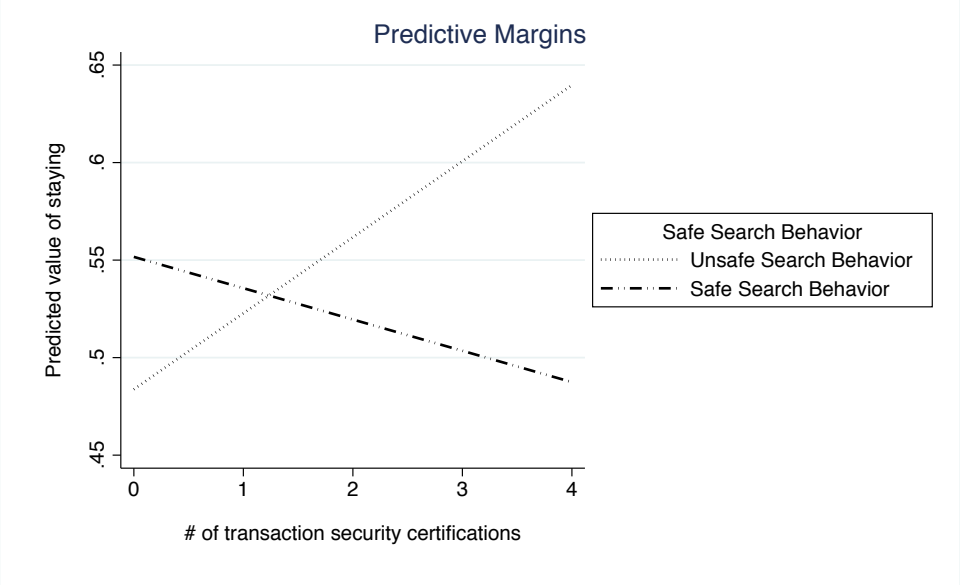

Figure 2b. Illustration of Hypothesis 2 showing the effect of transaction security certifications on stay through user-characteristics

Table 1. Descriptive statistics and correlation matrix

Variables	Obs.	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Stay	5,320	.53	.33	1.00												
(2) Trans. security claims	5,487	.63	.98	0.05*	1.00											
(3) CIPA seal	5,266	0.29	0.45	0.04*	0.36*	1.00										
(4) Legitimacy	2,732	.49	.5	0.03	0.22*	0.43*	1.00									
(5) Log (Visits)	5,322	7.96	1.55	0.12*	0.21*	0.30*	0.25*	1.00								
(6) Percentage unique visitors	5,322	.78	.23	-0.19*	-0.02	0.00	0.01	-0.46*	1.00							
(7) Words in homepage	5,245	1,106.8	1,131.5	-0.04*	-0.05*	-0.16*	-0.20*	0.08*	-0.05*	1.00						
(8) Number of pictures	5,266	6.84	13.62	0.00	-0.02	-0.09*	-0.20*	-0.03	-0.02	0.04*	1.00					
(9) Top products	5,266	.57	.49	0.03*	-0.10*	-0.16*	-0.29*	-0.05*	-0.04*	0.24*	0.05*	1.00				
(10) Drug categories	5,266	.4	.49	-0.03*	0.10*	-0.22*	-0.25*	-0.13*	0.04*	0.21*	0.33*	0.32*	1.00			
(11) Picture of pharmacist	5,266	.38	.48	0.00	-0.11*	-0.06*	-0.01	-0.18*	0.06*	0.04*	0.13*	0.11*	0.04*	1.00		
(12) Patient testimonials	5,266	.24	.43	0.00	-0.05*	-0.04*	-0.06*	0.03*	-0.05*	0.06*	0.00	0.10*	0.09*	0.14*	1.00	
(13) Traffic percentage	6,840	43.97	31.56	0.08*	0.00	-0.12*	-0.07*	-0.27*	0.00	-0.10*	0.07*	0.04*	0.09*	0.02	0.08*	1.00

* $p<0.05$

Table 2. Main effects regression results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Log (visits)	0.015**	0.013*	0.013*	0.013*	0.012	0.013+	0.018**	0.012
	(0.005)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)
Percentage of unique visits	-0.205***	-0.210***	-0.210***	-0.201***	-0.215***	-0.209***	-0.193***	-0.209***
	(0.031)	(0.031)	(0.032)	(0.032)	(0.039)	(0.038)	(0.032)	(0.038)
Words in homepage	-0.000*	-0.000+	-0.000+	-0.000+	-0.000+	-0.000	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of pictures	-0.000	-0.000	-0.000	-0.000	0.000	0.000	-0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Top products	0.043*	0.046*	0.047*	0.049**	0.072**	0.074**	0.048*	0.073**
	(0.019)	(0.019)	(0.019)	(0.019)	(0.024)	(0.024)	(0.019)	(0.023)
Drug categories	-0.030	-0.035	-0.035	-0.040+	-0.026	-0.025	-0.027	-0.023
	(0.022)	(0.023)	(0.023)	(0.023)	(0.025)	(0.025)	(0.023)	(0.025)
Picture of the pharmacist	0.004	0.006	0.006	0.001	-0.015	-0.023	0.006	-0.024
	(0.019)	(0.019)	(0.019)	(0.019)	(0.022)	(0.022)	(0.019)	(0.022)
Patient testimonials	-0.017	-0.016	-0.016	-0.014	-0.009	-0.003	-0.019	-0.004
	(0.021)	(0.021)	(0.021)	(0.020)	(0.021)	(0.021)	(0.022)	(0.020)
Percentage of traffic	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Transaction security seals		0.011	0.010	0.032**	0.006	0.039**		
		(0.008)	(0.008)	(0.011)	(0.010)	(0.013)		
CIPA seal			0.002	0.053*				
			(0.021)	(0.024)				
Transaction security seals × CIPA seal				-0.054***				
				(0.016)				
Legitimacy					0.035	0.068**		0.068**
					(0.021)	(0.023)		(0.023)
Transaction security seals × legitimacy						-0.055***		
						(0.016)		
Transaction seal in header							0.062**	0.066*
							(0.021)	(0.030)
Transaction seal header × CIPA seal							-0.091**	
							(0.029)	
Transaction seal in body							0.027+	0.033
							(0.015)	(0.022)
Transaction seal in body × CIPA seal							-0.063*	
							(0.026)	
Transaction seal in footer							0.029+	0.035
							(0.016)	(0.023)
Transaction seal footer × CIPA seal							-0.034	
							(0.026)	
Transaction seal header × Legitimacy								-0.091*
								(0.039)
Transaction seal body × Legitimacy								-0.070*
								(0.032)
								-0.033

Transaction seal footer × Legitimacy								(0.027)
Constant	0.580***	0.590***	0.591***	0.579***	0.558***	0.527***	0.575***	0.536***
	(0.070)	(0.072)	(0.073)	(0.072)	(0.086)	(0.085)	(0.073)	(0.087)
Month dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,174	4,174	4,174	4,174	2,565	2,565	4,174	2,565
Websites	230	230	230	230	201	201	230	201
R-Squared	0.071	0.072	0.072	0.078	0.083	0.089	0.079	0.091
F-Statistic	4.729***	5.183***	5.097***	5.091***	5.563***	5.534***		5.394***

Clustered standard errors are in parenthesis
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 3. Robustness checks

	No stay of 0 or 1				Heckman 2 steps w/ IV: SSL certificate		
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
DV	Stay	Stay	Stay	Stay	Transaction claims	Stay	Stay
Transaction Claims (dummy)	0.066**	0.069*					
	(0.023)	(0.031)					
CIPA	0.061*		0.034+			0.041+	
	(0.027)		(0.019)			(0.025)	
CIPA × Transaction Claims (dummy)	-0.107**						
	(0.036)						
Legitimacy		0.063**		0.041*			0.057*
		(0.023)		(0.017)			(0.028)
Legitimacy × Transaction Claims (dummy)		-0.084*					
		(0.040)					
Transaction Security Claims			0.029**	0.029*		0.036**	0.046**
			(0.009)	(0.012)		(0.013)	(0.016)
CIPA × Transaction Security Claims			-0.043***			-0.056***	
			(0.012)			(0.015)	
Legitimacy × Transaction Claims				-0.035**			-0.052**
				(0.012)			(0.017)
SSL Certification					0.723***		
					(0.068)		
Inverse Mills Ratio						-0.000	0.003
						(0.006)	(0.006)
Constant	0.592***	0.538***	0.485***	0.530***	-2.701***	0.562***	0.467***
	(0.070)	(0.083)	(0.060)	(0.062)	(0.265)	(0.080)	(0.100)
Control Variables	YES	YES	YES	YES	YES	YES	YES
Month dummies	YES	YES	YES	YES	YES	YES	YES
Observations	4,174	2,565	2,961	1,768	3,546	3,443	2,015
Websites	230	201	189	163		160	143
R-Squared	0.077	0.087	0.136	0.136		0.097	0.100
F-Statistic	5.334***	5.444***	8.951***	7.618***		5.718***	7.904***

Clustered standard errors are in parenthesis
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

CHAPTER 4

Essay 3: Going After Easy Prey: A Theory of Regulatory Enforcement

I think it's shameful that poor folks in Humphreys county, Mississippi have the highest [IRS] audit rate in America. But if you're a high flyer or someone running a shell company you're not as likely to get audited.

- Rep. Ron Wyden questioning IRS Commissioner Charles Rettig

***Bill Whitaker**: Did a DEA attorney actually tell you that they were not going to pursue McKesson because they had lawyers who had gone to Harvard and Yale?*
***David Schiller**: They told me those exact words, because the case would take too much time and too much effort and, by the way, "What if we lost?" I said, "What if you lost?" I go, "You-- you can't have a better case on a silver platter."*

- Bill Whitaker's 60 Minute Interview with David Schiller, leader of the DEA Team tasked with building a case against McKesson for their role in the opioid crisis.

Organizations can at times engage in corporate misconduct and wrongdoing. Research documenting wrongdoing has showcased organizations engaging in environmental violations (Diestre & Rajagopalan, 2011), employee workplace violations (Bernhardt, Spiller, & Theodore, 2013), safety violations (Oliver, Calvard, & Potočnik, 2017), privacy violations (Martin, 2016; Vaccaro, 2006), financial misrepresentation and fraud (Harris & Bromiley, 2007; Marcel & Cowen, 2014), product malfeasance (Govindaraj, Jaggi, & Lin, 2004; Wowak, Mannor, & Wowak, 2015), and antitrust violations (Fried & Oviatt, 1989; Szwajkowski, 1985) among many others. Regulatory agencies are the organizations tasked with making sure that firms follow the necessary laws, and that punitive measures are furnished if they do not. The fear of the fallout from regulatory enforcement is thought to deter the majority of organizations from ex-ante engaging in this wrongdoing (Furlong, 1991; Yiu, Xu, & Wan, 2014). However, some organizations who engage in wrongdoing are not sanctioned by regulators (Lemos, 2011). Regulatory agencies are resource-constrained organizations, and are unable to look at, investigate, and prosecute all who fall under their purview (Pfarrer, Smith, Bartol, Khanin, &

Zhang, 2008). Regulators, therefore, need to decide who they should go after. An important question then is, which firms get sanctioned and which firms do not?

Prior literature has argued that regulators and prosecutors should go after the worst offenders (Lemos & Stein, 2010; Osofsky, 2014). The implicit rationale here is that the regulators' utility function maximizes benefits, which in this instance is their reputational capital derived from sanctioning the worst offenders, and in doing so they might even be able to deter other lessor offenders (Yiu et al., 2014). The DEA and other agencies, for example, spent hundreds of millions of dollars to apprehend and prosecute Joaquín "El Chapo" Guzmán the former leader of the Sinaloa cartel (Cerullo, 2019). The EPA went after Hyundai and Kia, and finally settled by having them pay an estimated 350 million USD in civil penalties and preventative measures (Hering, 2014). However, many examples exist of large violators who have not been prosecuted. Between the year of 2006 and 2010, for example, HSBC failed to monitor drug trafficking proceeds by Mexican cartels worth a few billion dollars, and also conducted business on behalf of customers in Cuba, Iran, Libya, Sudan, and Burma, while they were under sanctions for decades, but were ultimately not prosecuted by the US Department of Justice (Dayen, 2016). One possible explanation that helps explain why some larger violators are not subjected to enforcement, is regulatory capture theory (Dal Bó, 2006; Stigler, 1971). Regulatory capture theory posits that firms may potentially capture regulatory agencies or extract rents from regulators by decreasing the likelihood of regulatory enforcement or the magnitude of penalties through lobbying (Diestre, Barber, & Santaló, 2020; Heese, Khan, & Ramanna, 2017), campaign contributions (Dal Bó, 2006), or revolving doors (Brown, 2016; deHaan, Kedia, Koh, & Rajgopal, 2015). However, there is still anecdotal evidence that even in the absence of corporate political activities, regulatory agencies might still not target the worst violators. For example, the

IRS audited lower income individuals at significantly higher rates than higher income individuals and shell companies (Ron Wyden, 2019). The extant literature has not yet addressed this behavior.

To answer this, we look at literature that explores stakeholder relationships with organizations. The relationship between firms and regulators resembles that of firms and social movements, in which both stakeholders apply pressure on the firm to stop or modify its behavior because it does not align with the stakeholders' preferences and values. Specifically, we draw on prior stakeholder research that shows how corporate opportunities affect which companies are more likely to be targeted by social movements (Briscoe, Chin, and Hambrick, 2014; King, 2008; Luo, Zhang, and Marquis, 2016; Soule, 2012). Activists and NGOs are resource constrained, and as they try and affect change they are constantly cognizant of the risks, rewards, and opportunity costs of targeting certain firms. The risks here indicate that after all the resources and efforts poured into changing a firm, the firm does not cease or modify its behavior, entailing reputational loss for the social movement and activists. One way to reduce the risk while reaching for sizable gains has been to rely on the corporate opportunity structure (Briscoe et al., 2014; King, 2008; Soule, 2009), firm attributes that makes it more likely for firms to capitulate to activists and change.

In our study, we apply this to regulators, a subset of very important stakeholders, who are also trying to pressure organizations. First, we argue that regulatory agencies are also mindful of the risk and cost, and similarly look at the corporate opportunity structure. Second, we show that firm responses to these regulatory pressures are heterogenous. Some firms are more likely to comply with regulators due to a more amenable corporate opportunity structure, whereas others are less likely to do so. That depends on whether the firm has hard-to-build resources/capabilities

that provide strong competitive advantages, which will need to be expunged if the firm were to comply with those pressures and stop or modify its behavior. If a regulatory agency then targets a firm that has these distinct resources, they are less likely to change and more likely to ignore them because they have more to lose than firms without those resources. Overall, then, if regulators care about maximizing their reward given comparable risks, and if firms that have competitive advantages are less likely to change and more likely to ignore regulators and are therefore relatively costlier to purse, then we expect that regulators will be less likely to target violators with strong competitive advantages and distinctive resources/capabilities.

To test this model, we look at illegal online pharmacies (IOPs) that cater to the US market and the FDA- the primary regulatory agency responsible. We look at the IOP context for three main reasons. First, pursuing legal action may come at a significant cost for the FDA since IOPs are often complex, global operations, and the FDA needs to coordinate its actions with multiple other federal and state as well as international agencies (US Government Accountability Office, 2013, 2014). Thus, the cost of prosecuting IOPs is mainly determined by whether IOPs acquiesce and shut down (i.e. less costly to the FDA) or whether they ignore them (i.e. costlier to the FDA) after receiving a warning letter from the FDA. Second, IOPs differ in the extent to which they have hard-to-build resources/capabilities that provide a competitive advantage which, as we propose, is a major determinant for whether they acquiesce or ignore the FDA after receiving a warning letter. Three such very important hard-to-develop resources that IOPs heterogeneously possess and that lead to competitive advantages are: (1) customer loyalty (Toufaily, Ricard, & Perrien, 2013; Wernerfelt, 1984) (2) web location in terms of search keyword popularity (Hotelling, 1929; Pe'er, Vertinsky, & Keil, 2016; Porter, 1990)., and (3) visibility in terms of their ranking position in search engines (Luo, Ba, & Zhang, 2012; Washington & Ventresca,

2004). Finally, this is a context where the regulator and the media commonly publicize the number of IOPs that were targeted, rather than the offense severity of any single IOP. Thus, it is likely that the FDA's reputational capital is mainly determined by the number, rather than the size, of the IOPs that are shut down (Carpenter & Krause, 2012; FDA, 2017, 2018) showcasing a keen sense of corporate opportunity structures.

In this paper we propose that the propensity of IOPs to ignore or comply with the FDA, and thus respectively make this more or less costly for the FDA, depends on the amassed hard-to-build resources/capabilities that provide competitive advantages by the IOPs. We claim that the IOPs that have these resources/capabilities are less likely to cease their operations, costing significant regulatory time and resources without necessarily having compensatory benefits to the FDA given that the probability of shutting them down is low and that the FDA's reputational gains might actually be derived from the number of IOPs shut down rather than on any single offender. Accordingly, we claim, the FDA would favor targeting many less costly IOPs than a few costly ones as it increases the FDA's utility function. We particularly focus on the following resources/capabilities: customer loyalty, search keyword popularity, and ranking position. Thus, we predict that IOPs who amassed more customer loyalty, who are better ranked in their respective search keywords, and who are located in more popular keywords are less likely to be targeted by the FDA.

We test our hypotheses on a sample of 363 IOPs between January 2017 and June 2020 to explore how customer loyalty (captured through proportion of repeated visitors), ranking position (captured through web ranking position in search engines), and search keyword popularity (captured by the average cost per click) affect the likelihood of being targeted by the FDA. Supporting our theory, we show that IOPs who have higher customer loyalty are less likely

to get targeted. IOPs who have 100% loyalty are 92.3 percent less likely to get a warning letter than those who have 0% loyalty. We also demonstrate that if IOPs located in popular search keywords, are less likely to get targeted by the FDA. For every dollar increase in cost per click, the probability of getting a warning letter decreases by over 38.2 percent. Finally, we also show that when IOPs had higher ranking positions by a single logarithmic unit in their respective search keywords they were 61 percent less likely to get a warning letter.

Our research has the potential to make several theoretical contributions. First, we try to establish a theory of regulatory enforcement beyond the traditional public interest and regulatory capture models (Dal Bó, 2006; Mitnick, 1975; Olson, 1995; Potter, Olejarski, & Pfister, 2014; Stigler, 1971). We show that regulators will go for easy prey; organizations that are smaller and less developed. That is because these firms have less to lose, and will more likely comply with regulators, and as such are the most optimized use of the regulator's resources. We therefore address calls by Hiatt and Park (2013, 923) to go beyond the focus on policy and rather address "neglected policy implementation by regulatory agencies" which they consider to be a serious omission. We also, to our knowledge, are the first to utilize the concept of corporate opportunity structures and political opportunity in the realm of regulatory agencies. Second, our paper looks at the simultaneity between regulatory actions and the regulated firms by showcasing the complex dynamics of how the expected ex-ante resistance of target firms affects whether regulators decide to enforce or not. Third, this paper has significant consequences for the extant organizational violations and misconduct literature, where the implicit assumption has been that the most severe violators are looked at (Greve, Palmer, & Pozner, 2010; Linstead, Maréchal, & Griffin, 2014; McKendall & John A. Wagner, 1997; Pinto, Leana, & Pil, 2008; Vaughan, 1999). If in fact those samples are comprised of smaller and less harmful organizations, this would

prompt us to look at and reconsider a lot of the conclusions in that literature. Finally, this is one of the first papers to empirically look at outcomes resulting from firms within the informal and illegal settings. Although the informal economy accounts for about 41 percent and 18 percent of developing and OECD countries' official GNI respectively (Schneider, 2002), few studies within the management literature have looked at firms within this sector (Bruton, Ireland, & Ketchen, 2012; Cannatelli, Smith, & Sydow, 2019; Darbi, Hall, & Knott, 2018; McGahan, 2012), mostly due to the difficulty of collecting data about illegal activities.

CONTEXT

The WHO estimates that about a third of all prescription drugs (and in some regions upward of two thirds of all prescription drugs) are counterfeit. The counterfeit, substandard, and fake pharmaceuticals market is estimated to be worth over $400 billion a year, surpassing almost everything else in the illegal sector including prostitution, human trafficking and illegal arms sales (Scott, 2016). In fact, the majority of online pharmacies selling primarily to the US market are also illegal online pharmacies. IOPs are criminalized in the United States under many laws including the FDCA and the Ryan Haight Act. Yet illegal online pharmacies continue to thrive. One-third of the respondents in a survey conducted in the US by ASOP Global, for example, responded that they have "used an online pharmacy to purchase medications for themselves, a family member or someone under their care" (ASOP Global, 2017:4).

We focus on this context for three main reasons: (a) the cost of prosecuting IOPs depends on whether they ignore the FDA or not, (b) there is a high degree of heterogeneity in IOPs in terms of their distinctive resources and (c) the reputational capital gains by the regulator (FDA)

is determined by the number of organizations they shut down showcasing an understanding of corporate opportunity structures. We explain these reasons in detail below.

First, the FDA is the primary regulatory body in the US charged with targeting and enforcing the FDCA by trying to ultimately seize their assets and help shut down their websites. Locating IOPs online is not a difficult endeavor (for the FDA or otherwise). The FDA defines rogue online pharmacies (i.e. IOPs) as those that do not ask for a doctor's prescription, are not licensed in the United States and by the respective state boards of pharmacy, sells unapproved new drugs or misbranded drugs, offers prescription drugs without the required FDA warning to consumers about any potential risks associated, and offers prescription drugs without adequate directions for safe use (FDA, 2020a). In fact, the National Association of the Board of Pharmacies (NABP) which regularly liaises with the FDA makes the identification of IOPs quite easy as they collate tens of thousands of IOPs in an annual list they publish on their website (NABP, 2021). The FDA prosecutes those IOPs for which they send a warning letter to, who then do not comply.[12] Not all IOPs cease their activities after receiving the FDA's warning letter; some ignore them.[13] If an IOP fails to address the violations stemming from the Warning Letter, legal action including seizure, injunction, and temporary restraining orders without further notices, as well as other criminal and civil actions could be taken. Yet, these are very costly endeavors for the FDA. In fact, according to a report by the Government Accountability Office to the US congress (US Government Accountability Office, 2013, 2014) the FDA and other

[12] Sending a warning letter and not punishing IOPs who ignore it or fail to comply with its directives greatly damages the FDA's reputation among IOPs, and its subsequent threats to them will become highly noncredible. No regulatory agency would allow such an existential threat to willingly occur (Carpenter & Krause, 2012). Therefore, the FDA then *only* targets with a warning letters those for which they would, if non-compliant, have to prosecute.
[13] For example, canamericadrugs.com shut down only a couple weeks after they received a warning letter, whereas buysonataonline.com shut down almost 2 years after receiving their warning letter.

regulatory officials often find it difficult to piece together IOP operations for many reasons including the fact that many take multiple steps to disguise their identities, and even then, the majority of those operations are located abroad. Additionally, there are challenges relating to the complexity of the IOP operations as well as challenges relating to charging some of them under some federal laws. Finally, to target and prosecute IOPs, the FDA has to coordinate with many other state, federal, and sometimes international agencies which is time and resource intensive. Thus, FDA prosecution costs are heterogenous: extremely large if targeted IOPs decide to ignore or resist and minimal if targeted IOPs cease their activities upon receiving the warning letter.

Second, IOPs are also heterogenous in their accrual of competitive advantages derived from unique and valuable resources that are hard to develop and difficult to imitate. Three such major resources are (1) customer loyalty (2) search keyword popularity and (3) visibility. First, IOPs can develop different amounts of customer loyalty (Haney, 2000). Some IOPs can retain significant amounts of consumers by investing in customer retention programs, whereas others do not, and therefore do not get a lot of repeat visitors. Investing in customer retention is also costly and time intensive. In Italy, for example, one of the IOPs that were targeted had a dedicated employee whose specific role was to keep in contact with prior customers through Email and social media to cultivate their loyalty (Lavorgna, 2015). Second, IOPs that are located in prime locations by being ranked in more popular keywords are more likely to be found by customers compared to those who are not (Baye, Santos, & Wildenbeest, 2016; Berman & Katona, 2013; Dou, Lim, Su, Zhou, & Cui, 2010; Zhang & Cabage, 2017). Building such a capability, however, is not quick or cheap. Third, IOPs, that are more visible by being ranked in higher positions are more likely to be found and trusted. Higher visibility also indicates to end-consumers that the IOP is diligently working on an overarching marketing strategy (Drèze &

Zufryden, 2004), and that they are therefore more trustworthy and credible (Luo et al., 2012). This resource, however, is also very hard to develop as it "entails an expensive investment of time, money, and effort" (Luo et al., 2012: 1133). Search engine optimization (SEO), techniques used to improve web rankings, are a costly and time-consuming endeavor with no guaranteed results.

Finally, the FDA might amass a significant amount of reputational benefits by focusing on the number of IOPs they target, rather than on the severity of any individual IOP. Press releases by the FDA, seem to highlight the number rather than the names of IOPs in both the titles and ledes of those releases (FDA, 2017, 2018, 2019). For example, one of the press releases is titled *FDA takes action against 53 websites marketing unapproved opioids as part of a comprehensive effort to target illegal online sales (FDA, 2018)*. The media when reporting on these FDA efforts, also seem to highlight the number of the pharmacies targeted. The lede of a CBS News Article (2017), for example, was the following:

> *The U.S. Food and Drug Administration is cracking down on more than 500 websites that it says were illegally selling potentially dangerous, unapproved versions of opioids and other prescription drugs to American consumers.*

Thus, the accrued benefits for the FDA seems to come from the amount of IOPs targeted rather than any single targeted IOP. This showcases that the FDA is attuned to the corporate opportunity structures.

THEORY

In this paper we seek to examine which IOPs are most likely to get targeted by the FDA. To do this we first take a utilitarian view of regulators by showing how they minimize costs and

maximize benefits by being cognizant of the corporate opportunity structure, and the resources/capabilities they focus on. We then look at how firms respond and therefore whether the regulators target them or not.

Opportunity Structures in Regulatory Enforcement

Regulatory agencies, though beholden to a large extent to their legislative principals, have a lot of leeway in how to interpret and implement policies (Evans, Rueschemeyer, & Skocpol, 1985; Guillén & Capron, 2016). Some extant literature has looked at how regulators might not regulate to maximize social utility; rather regulators try to maximize their own utility by trying to get more autonomy and more resources (North, 1990; Skocpol, 1985). Regulatory bodies, for example, have attempted to increase the size of their budgets and workforces, as well as improve the reputational capital and prospects of their directors (Dunleavy, 1985; Leaver, 2009; Niskanen, 1971; Weatherby, 1971)). To better assess how regulators are then able to maximize their utility function, both (1) benefits, in terms of legitimacy and reputation, and (2) costs, in terms of resources and time, need to be considered.

Regulatory agencies maintain themselves in a number of different ways, primary of which is by seeking to increase their power and autonomy by sustaining and even expanding their intangible assets. The reputational capital amassed by these regulatory agencies are especially potent in shifting the legislative principals' perception allowing them to ultimately acquire more autonomy, discretion, resources, and deterrence capabilities, and thus providing them with benefits (Carpenter, 2001; Deephouse & Suchman, 2008; King, Felin, & Whetten, 2010; Yiu et al., 2014). As such, regulatory agencies are incentivized to capture as much legitimacy and reputational capital as possible, as these lead to increased benefits. Although subjecting certain firms to regulatory enforcement and prosecution may provide more

reputational capital than others for a number of reasons including firm notoriety and operational hazardousness, regulatory agencies may focus more so on the reputational effects amassed by targeting a larger number of offenders successfully. This is because the portfolio effect (i.e. the summation of the totality of targeted offenders) might be easier to publicize and gain reputation and legitimacy from than targeting any single offender.

In a resource unconstrained setting, regulatory agencies would then focus solely on amassing those benefits without any others considerations. However, regulators are frequently resource constrained, and sometimes severely so, which means that cost considerations are factored into how they measure their utility function. The costs of regulatory enforcement and prosecution are also heterogenous. Targeting and prosecuting some illegal firms (or the illegal activities of firms) is costlier than targeting and prosecuting others. This is because some firms will try to quickly resolve the issues at hand and stop their illegal activities, whereas others might ignore them draining the regulatory agency's time and resources. If regulators then expect that their benefits are accrued in terms of the number of offenders that are targeted, then the only way to maximize their utility in a firm-to-firm comparison is by prioritizing those whose costs are lower. They therefore target firms who they think are more likely to acquiesce and less likely to ignore them.

To understand how this occurs, we reconceptualize how regulators target firms as more analogous to the literature on stakeholder pressures, and specifically draw from prior research that looks at how corporate opportunity structures affect which companies are more likely to be targeted by social movements (Briscoe et al., 2014; King, 2008; Luo, et al., 2016; Soule, 2009; Soule, 2012). Social movement activists tend to have limited time and resources to affect change, and there are extant fears of retaliation from stakeholders who are affected by their activities. As

a result, activists are constantly cognizant of the risks, rewards, and opportunity costs of targeting certain firms. Specifically, activists are attuned to certain firm resources/capabilities, beyond and divergent from the primary objectionable social and behavioral characteristics, that vary their interests in them as targets, in what scholars call the corporate opportunity structure (Briscoe et al., 2014; King, 2008; Soule, 2009). Activists rely on these distinct resources to help them decide whether the risk-reward decision process makes sense. If they believe that organizations that have certain characteristics are more likely to acquiesce and change, then they are more likely to target firms with those characteristics (Benton & You, 2019; Briscoe et al., 2014; Soule, 2012).

We draw from the same concepts and extend it to include opportunities from the regulatory perspective. We argue that regulatory agencies are also mindful of the risk and cost, and similarly look at the corporate opportunity structure. Certain distinct resources from the monitored characteristics regulators are mandated to look at are taken into consideration when deciding whether to enforce or prosecute. That is because these factors showcase a vulnerability within the firm and a flexibility towards change, leading to easier and less costly wins. One additional benefit of going for the easier and less costly wins, is that regulatory agencies are able to then target more firms more successfully. This increased number of successes increases the overarching reputational capital that the regulators can amass. There are then outsized benefits for regulators to uphold such a strategy, because they are able to not only decrease their costs, but will also increase their benefits, maximizing their utility function.

In our context, the FDA bears significant costs when targeting IOPs, and those costs may be heterogenous depending on which IOPs are targeted. Some IOPs are expected to comply and even shut down their websites quickly, thereby not taking up too much of the FDA resources.

Other IOPs are expected to ignore the FDA leading to a more resource-intensive effort by the FDA to obtain a successful outcome. Going after the latter, means that the FDA does not only utilize more resources, but that they also lose reputational capital and credibility if they fail to get that successful outcome. A failure thus decreases their benefits and increases their costs. Conversely, going after the former, decreases costs as well as probabilities of failure, which increases the FDA's utility. Additionally, because these IOPs are cheaper to target, they are then able to target even more IOPs leading to outsized reputational gains. In fact, in their press releases, the FDA usually boasts about the number of websites it targets (e.g. 465 IOPs in 2018) rather than about any single IOP. The FDA then targets those IOPs whose resources/capabilities increase the likelihood that they will comply, and leave those who will ignore them.

Target Firm Characteristics and Responses

The next natural question is, which firms are more likely to comply once they are targeted by regulatory agencies? We posit that acquiescing to regulatory agencies depends on the a priori successes of the firm in terms of amassing distinct hard-to-build resources and capabilities that confer them with a competitive advantage. Firms that amass these resources have more to lose and are therefore then less likely to comply.

Illegal activities within firms and illegal firms are specifically easier to found. This is because they do not have to deal with the bureaucratic hurdles of founding, with external compliance throughout the organizational timeline, or with regulatory changes that are costly and time consuming (Godfrey, 2011). However, they do so under the ever-present threat of regulatory retaliation and enforcement. Those that succeed in spite of this regulatory shadow and amass hard-to-build resources/capabilities that provide competitive advantages, might not get a second chance to do so. Prospect theory (Tversky & Kahneman, 1992) suggests that because these

resources/capabilities were gained over the lifetime of the firm, the aversion towards their loss especially if they were difficult to procure becomes more significant. If the firm had no valuable assets, tangible or intangible, the risk calculus to shut down their illegal operations would be easy. If, however, certain resources are developed that provide significant competitive advantages to the firm and are non-transferable, then the opportunity cost of starting over is significant and the calculus for taking additional risk by ignoring regulatory agencies increases.

Three important difficult-to-build resources that lead to increased competitive advantages and that decrease the likelihood of complying with regulatory pressures are (1) customer loyalty, (2) location, and (3) visibility.

Loyalty

Customer loyalty is an extremely valuable resource, and is a time-intensive and costly resource to procure (Toufaily, Ricard, & Perrien, 2013; Wernerfelt, 1984). Generating and retaining loyalty is increasingly seen as crucial to the success of the firm, as loyal customers are cheaper to serve, less likely to be captured by competition, and not as price-sensitive (Ganesh, Arnold, & Reynolds, 2000). Shutting down and starting over, however, is extremely costly as incumbent firms are more likely to generate better customer loyalty than new entrants (Carpenter & Nakamoto, 1989). Additionally, the determinants of loyalty are multidimensional (Liang, Chen, & Wang, 2008; Pearson, Tadisina, & Griffin, 2012; Toufaily et al., 2013), and understanding what exactly leads to increased loyalty is challenging. This difficulty in discernment is seen as a positive when it relates to competitors as it increases inimitability, but is especially difficult if there is a need to understand how to replicate or further generate loyalty (Miller & Shamsie, 1996). Organizations who achieve improved customer loyalty therefore

would not want to jeopardize their competitive advantage, or the potential inability to replicate or rebuild such a resource.

Achieving customer loyalty within the online context is even more difficult because of the low search costs for competitor websites (Liang et al., 2008), and discerning how improved customer loyalty is achieved is also not necessarily well understood even as it provides significant competitive advantages. Therefore, IOPs who have advantageous customer loyalty metrics might be hard pressed to change their modus operandi, and would likely ignore any regulatory pressures to cease their activities. This is because if IOPs have loyal visitors, there is not a guarantee that this would be replicable if they shut down and opened with a new domain, making shutting down a significantly costlier proposition. Therefore, IOPs who have a higher proportion of loyal visitors suggest a corporate opportunity structure that is less appealing to regulators and are therefore less likely to get targeted by the FDA. This gives rise to our first hypothesis:

H1: An IOP's customer loyalty has a negative effect on the probability that it will be targeted by the FDA

Location

Location has long been looked at as a major source of competitive advantage (Hotelling, 1929; Malecki, 1985; McCann & Folta, 2008; Pe'er et al., 2016; Porter, 1990). Theories on agglomeration help explain the distinct locational competitive advantages. The extant literature has looked at agglomerative advantages that include consumer search-cost reductions (Audia, Freeman, & Reynolds, 2006; Porter, 1991), improved information flow among competitors that allow them to more quickly respond to competitor moves (Chung & Kalnins, 2001), as well as

legitimacy spillovers (Hannan & Carroll, 1992). These hard-to-get outcomes are extremely valuable, and provide significant competitive advantages without them necessarily being transferrable. This makes changing locations a potentially costly decision.

Within our context, IOPs are virtually located on search engines by being ranked for certain search keywords.[14] Having an advantageous location on search engines by being placed in a popular search keyword is generally a difficult endeavor. Understanding how that happens is equally abstruse. It is virtually impossible to know the factors and weights that go into the Google algorithm, and its constant evolution makes it a foolhardy undertaking (Search Engine Journal, 2021). Additionally, Search Engine Optimization (SEO) techniques usually take a long time to deliver results (Bertram, 2020). For IOPs this is even more difficult because IOPs are not allowed to formally advertise on any of the main search engines, and there are no clear explicit legal ways around that (Google, 2021).

In theory, if a regulator targets an IOP, it may find it easy to shut down their existing websites and open up with new domain names as it is quick and cheap to do. In fact, the GOA report (2013: 27) quotes one of the employees saying that some IOPs "keep domain names in reserve so that they can redirect traffic to new websites and maintain operations if any of their websites get shut down." However, IOPs who amass locational advantages by being located in more popular search keywords are more easily found by customers (Baye et al., 2016; Berman & Katona, 2013; Dou et al., 2010; Zhang & Cabage, 2017), and therefore have a significant

[14] In this paper we choose to look at the virtual rather than the physical locations of IOPs for a number of reasons. First, end-consumers find IOPs through search engines rather than through physical means. Second, it is very likely that no IOP has a physical nexus in the United States, even though IOPs primarily cater to US based audiences. Third, it is difficult to get any credible information about where IOPs are located as IP location information is notoriously unreliable and the great majority of IOPs mask their locations using VPNs among other alternatives. The latter two points showcase that it is difficult and costly to even physically find IOPs, let alone enforce and prosecute. However, even that being the case, warning letters were still sent to some IOPs and not to others.

competitive edge against their competitors. Therefore, IOPs who have advantageous locational metrics by showing up in popular search keywords will likely ignore any regulatory pressures. This is because the opportunity cost in terms of competitive advantages is extremely high and a replication of activities to amass equally advantageous locations is unguaranteed. Shutting down and opening elsewhere (i.e. a new domain) becomes costlier and as such IOPs are more likely to ignore the FDA if targeted. Because of this, IOPs who have advantageous locations by being located in search keywords that are popular and hard to rank in, suggest a corporate opportunity structure that is less appealing to regulatory agencies and are therefore less likely to get targeted by the FDA. This gives rise to our second hypothesis:

H2: An IOP's location in popular search keywords has a negative effect on the probability that it will be targeted by the FDA

Visbility

Visibility can provide increased perceptions of prestige and legitimacy as well as an influx of resources (Washington & Ventresca, 2004). Improved visibility is a competitive edge that is significant as it not only increases the number of people who visit the IOP, but also increases its credibility and trustworthiness. High online visibility in particular indicates to end-consumers that the IOP is diligently working on an overarching marketing strategy (Drèze and Zufryden, 2004), and that they are therefore more trustworthy and credible (Luo et al., 2012). This resource, however, is also very hard to develop as it "entails an expensive investment of time, money, and effort" (Luo et al., 2012: 1133). Search engine optimization (SEO), techniques used to improve web rankings, are a costly and time-consuming endeavor with no guaranteed results.

Therefore, IOPs who are more visible by being higher ranked for any given search keyword will likely ignore any regulatory pressures as shutting down and opening elsewhere (i.e. a new domain) becomes costlier. This is because there is a high opportunity cost in terms of competitive advantages, and it is not definitive that an IOP would be able to replicate the conditions that allowed for the amassing of such a resource to begin with. Because of this, IOPs who are more visible by being highly ranked, suggest a corporate opportunity structure that is less appealing to regulatory agencies and are therefore less likely to get targeted by the FDA. This gives rise to our third hypothesis:

H3: An IOP's ranking position has a negative effect on the probability that it will be targeted by the FDA

METHODS

Data and Sample

Looking at warning letters sent to IOPs provides us with an appropriate setting to study regulatory enforcement. First, all IOPs are by definition illegal in the US, and therefore should all be expected to receive those warning letters. Yet the FDA only subjects a fraction of IOPs and sends them a warning letter. Second, because the majority of these IOPs are illegal and are not based out of the US, they are virtually devoid of any lobbying or other regulatory capture activities that might plague the sample with endogeneity concerns. Finally, the FDA's response is complex enough such that resources are depleted, but not as complex or resource intensive as other regulatory enforcement efforts. Therefore, if we find an effect here, we should expect to find the effect in other settings.

We get our initial sample of illegal online pharmacies from the 2017 NABP's Not Recommended List (NRL). The 2017 NABP's NRL is a censured list of online pharmacies "that appear to be out of compliance with NABP patient safety and pharmacy practice standards, or applicable law" (NABP, 2021). IOPs in the NRL frequently facilitate (1) selling prescription drugs without the necessary prescriptions; (2) selling unapproved and unauthorized medication; and (3) practicing without the necessary licenses needed in all relevant jurisdictions. The list contains 10,998 websites of which only 1,052 were active at the time of our data collection in 2017. We removed any duplicate websites, any websites where the primary language was not English, websites selling veterinary medication, and websites selling single drugs, and got a sample of 500 illegal online pharmacies.

We then manually collected all Internet Pharmacy Warning Letters sent to IOPs by the FDA between and including the months of January 2017 and June 2020 which we found on the FDA website. If a warning letter had more than one IOP, we included all the websites in that letter. Any IOPs for which the FDA did not send a Warning Letter were assumed not to have received one. 61 IOPs out of the initial list of 500 websites ultimately received a Warning Letter.

We subsequently collected all organic keyword search data, which are the positions, keywords, and cost per click data in which an IOP ranks in Google's top 100 organic search results for the time period, January 2017 to June 2020. We use keywords that do not have a zero value for traffic and that bring the maximum amount of traffic to each web per month. We further narrow down our sample to 372 IOPs. We do the same thing, but this time collected traffic and user behavior data from Semrush for the time period, January 2017 to June 2020 for traffic coming from US visitors. We only include websites for which Semrush data was available and end up with 323 IOPS.

We then used the Wayback Machine in the archive.org website to track illegal online pharmacies over the period from January 2017 until June 2020. We manually capture information about how the homepage in those pharmacies look like. If an online pharmacy was not crawled by the Wayback Machine for a certain month, we assess whether the capture right before and after those months look identical. If so, we assume that this is how the website looked for that month. We retain those webs for which there is data. Our final sample contains 288 websites and 6,294 month-web observations.

Measurement

Dependent Variable Our dependent variable is a binary one measuring whether the IOP is targeted by the FDA through a warning letter from the FDA or not. The FDA's regulatory procedures manual (2020b: 3) explains the agency's position stating "that Warning Letters are issued only for violations of regulatory significance. Significant violations are those violations that may lead to enforcement action if not promptly and adequately corrected."

Customer loyalty: we measure this by calculating the proportion of visitors that are repeat visitors (1-(Unique Visitors/Total Visits).[15]

Search keyword popularity: We measure this by looking at the cost per click (cpc) of the keyword for which a website ranks in Google's top 100 organic search results and that drives the maximum amount of traffic to each IOP per month. The cpc is the average price that advertisers pay for a user to click on an ad that is triggered by that particular keyword. A high cpc indicates that the search keyword is popular and that multiple websites are competitively bidding to be placed there.

[15] We also measure this by calculating the number of visits per unique visitor and get similar results.

Ranking position: We measure this by looking at the logarithmic measure of the position of the keyword for which a website ranks in Google's top 100 organic search results and that drives the maximum amount of traffic to each IOP per month. Organic search results are used rather than all search results including paid results because Google (but also other search engines like Bing and Yahoo) do not run advertisements by any pharmacy that is not NABP approved. This means that their Google rankings are a result of time and resource intensive search engine optimization (SEO) efforts.

Controls. We add a control for the number of *Words on Homepage* to the extent that the amount of words on the website's homepage most likely affects customer behavior. A more verbose homepage is more likely to have a deterring effect on end-consumers, and might decrease the amount of people who visit and stay, as most users read only a small proportion of words on a homepage (Weinreich, Obendorf, Herder, & Mayer, 2008). More words, and potentially lower readability can adversely affect if and how long consumers stay in an IOP which affects how the FDA would assess the IOP and whether to target it or not. We also control for the *Number of Pictures.* Given the common usage behavior of scanning websites (Weinreich et al., 2008), users might be more prone to being attracted to websites with more pictures, which could increase the rate at which they stay affecting how the FDA would look at such an IOP (Nielsen, 2008). We add controls for the presence of a list of *Top Products* as well as *Drug Categories*. Both might affect consumer behavior by making it easier and more enticing for users to click on the list of drugs, and by increasing intention to buy making the IOP potentially more hazardous. Additionally, the presence of a *Pharmacist Picture* as well as *Patient Testimonials* could be used to signal credibility which could affect usage behavior thereby affecting whether the FDA targets the IOP.

The FDA states that any online pharmacy that does not have a phone number might be unsafe or illegal. We therefore control for whether a website has a *Phone Number*. Similarly, IOPs who facilitate purchases without requiring customers to register for an account are likely to be serious offenders. We therefore control for whether consumers are able to register for an *Account*. Conversely, the number of *Pharmacy Association Seals* may confer legitimacy (Bate, Jin, & Mathur, 2014) on the website and might indicate that it is not as hazardous to end-consumers as others. The FDA might then decide to target more hazardous IOPs. Finally, the FDA might be pressured into action by articles written about illegal and rogue online pharmacies. We therefore control for the number of *Articles* written in major American news and business sources. We then take a 6-month lagged mean for all independent and control variables.

Estimation

To analyze the effects of different resources/capabilities on whether an IOP receives a warning letter, we employ an event history analysis. Specifically, we use a Cox proportional hazards model because it does not require an assumption of the distribution of the baseline hazard, and it allows for the consideration of multiple factors on whether a warning letter is received. The general Cox proportional hazards model is estimated as follows:

$$h_i(t)=h_0(t) * e(\sum b_i x_i)$$

where t is the time until a warning letter is sent, h(t) is the hazard function determined by x_i, $b_{i\ is}$ the coefficient multiplier for x_i, and $h_0(t)$ is the baseline hazard. The hazard ratios are calculated by exponentiating b_i. Values greater than 1 indicate an increase in the probability that a failure event occurs, or in our instance that a warning letter is sent. Values less than 1 indicate a decrease in the probability that a warning letter is sent.

RESULTS

Table 1 shows the summary statistics and correlation matrix for the relationship between our three explanatory variables (i.e. *customer loyalty*, *keyword popularity*, and *ranking position)* and the likelihood of being targeted by a *warning letter*. We calculated variance inflation factor scores for all independent and control variables, and all had a value significantly below 10 (the highest being 1.39), suggesting that we should not be concerned about multicollinearity. We also conduct a proportional hazards assumptions test based on Schoenfeld residuals using the command estat phtest. We get statistically insignificant p-values for all our models which suggests that we would not be able to reject the null hypothesis that the hazards are proportional.

----Insert Table 1about here----

In Table 2 we show the results of our three main hypotheses, and we exponentiate the coefficients in Table 2 to show the hazard ratios. In Model 1, only the control variables were included. Having a phone number or certifications regarding drug safety on the homepage of the IOP decreases the probability that they are targeted by the FDA. In Model 2 the hazard ratio for *loyalty* is below 1 and statistically significant (HR= 0.078, p-value= 0.043) lending support to Hypothesis 1. In Model 3 the hazard ratio for *keyword popularity* is below 1 and statistically significant (HR=0.618, p-value= 0.019) lending support to Hypothesis 2. In Model 4 the hazard ratio for *ranking* is below 1 and statistically significant (HR=0.389, p-value= 0.002) lending support to Hypothesis 3.

----Insert Table 2 about here----

Interpretation of Results

The hazard ratios are exponentiated coefficient terms that provide an understanding of the likelihood that IOPs reach a failure state or in this instance getting a warning letter. For *customer*

loyalty we calculate the proportional likelihood as 1-0.077=0.923. This means that IOPs who have 100% customer loyalty (i.e. the customer base is all returning customers) are about 92.3 percent less likely to get a warning letter than those who have 0% loyalty (i.e. the customer base is all new customers). For *keyword popularity,* we calculate the proportional likelihood as 1-0.618= 0.382. This means that for every 1 dollar increase in cost per click, the probability of getting a warning letter decreases by over 38.2 percent. For *ranking position,* we calculate the proportional likelihood as 1-.39= 0.61. This means that the likelihood for IOPs to receive a warning letter if their logarithmic ranking increased by a single unit decreases by 61 percent.

Robustness checks

Testing Mechanism. To test the proposed mechanism, we posit that the three competitive advantages should have a positive effect on the number of visits. Visits are an outcome of these competitive advantages rather than a competitive advantage in itself. We therefore regress *number of visits* on *customer loyalty*, *keyword popularity*, and *ranking* and find that the signs are as expected and are all statistically significant. In Model 1 in Table 3, we show that *customer loyalty* positively affects *number of visits* (β=**3.93**, p-value= 0.000); *keyword popularity* positively affects *number of visits* (β= 0.11, p-value= 0.011); and *ranking* positively affects *number of visits* (β= 0.45, p-value= 0.001). This lends additional credence that losing these competitive advantages are very costly to the IOPs.

----Insert Table 3 about here----

Alternative Estimation. We use two alternative estimations: a standard logistic regression with web-level clustered standard errors in Model 2 of Table 3, and Firth's penalized maximum likelihood estimation method (Coveney, 2008; Heinz, 2013; Heinze & Schemper, 2002) to correct for underestimations of the probability of rare events, and standard error bias of the logit

coefficients (King & Zeng, 2001) in Model 3 of Table 3. The results for all three of our explanatory variables in both models demonstrated expected coefficient signs and all are statistically significant below $p<0.1$.

Sample Bias. We rerun the analysis of the main effects with the same specifications, but change the sample to only include those IOPs that are not part of the Canadian International Pharmacy Association (CIPA) in Model 4 of Table 3. CIPA is an association of online pharmacies that are based out of Canada and are compliant with the relevant Canadian laws (though there is significant debate about whether that is the case (e.g.Attaran & Beall, 2014; Bate et al., 2014; Horton, 2017; Monteith & Glenn, 2018)). These pharmacies cater mostly to US-based customers and have valid Canadian regulatory licenses, prescribe only to customers with valid prescriptions, do not sell controlled substances, and sell pharmaceuticals in limited quantities (Smith, 2020). We choose to discard CIPA members from our sample, as CIPA members have been at times legitimated by various politicians in the United States. We therefore constrain the sample in this check to those who are both illegal and rogue. We similarly find statistically significant (all below $p<0.1$) results for all three of our explanatory variables.

Interaction of locational attributes. Because regulatory agencies are attuned to the corporate opportunity structure, a more nuanced understanding of the interplay between search keyword popularity and ranking, as both constructs are interrelated, could be an additional resource/capability that regulators would look at. Regulatory agencies want to get the largest reward if the risks and opportunity costs are comparable. Therefore, when an IOP is not so highly ranked in any given search keyword, the regulatory agency will more likely target those who are positioned in more popular search keywords than those positioned in less popular ones. On the flip side, IOPs gain positive externalities and spillovers from being highly positioned in a

popular (i.e. a difficult to rank in) search keyword. These positive externalities heighten the sense of loss aversion for IOPs, and decreases the likelihood of complying with the FDA. In that instance the difference in risk between IOPs prominently placed in more popular keywords and those prominently placed but in less popular search keywords can be drastic. The regulatory agency in that instance more likely targets those IOPs that are located in popular search key terms. Therefore, we should expect to see that high-ranking positions for an IOP should increase the probability that it will be targeted by the FDA if it ranks in an unpopular search keyword, and should decrease the probability that it will be targeted by the FDA if it is ranked in a popular keyword. We show that this is indeed the case in Model 5 of Table 3. The hazard ratio for *search keyword popularity* is 12.6 and statistically significant (β=2.537, p-value= 0.073), and the hazard ratio for the interaction term is 0.497 and statistically significant (β=-0.699, p-value= 0.039) lending support to the interaction.

DISCUSSION

In this paper we seek to answer the following question: which firms are regulatory agencies more likely to target? To answer this, we build a richer model than exists in the extant literature based on corporate opportunity structures for regulatory agencies and account for enforcement costs that result from an expectation of whether a firm will choose to comply or ignore. We argue that the determinants for whether firms comply or ignore, are the unique and valuable resources/capabilities that are difficult to imitate, and that provide the firms with significant competitive advantages. We focus on three such resources (i.e. loyalty, location, and visibility) to argue that those who own such resources are unlikely to yield to regulators, making it costly for regulators to pursue them. They are therefore less likely to be targeted and

prosecuted. We find compelling evidence through our empirical results that this is indeed the case. IOPs that have a higher proportion of retained consumers, that are located in more popular search keywords, and that are better ranked in search engines, are less likely to receive warning letters.

SEC commissioner Troy Paredes, when giving remarks at the 43rd Annual Rocky Mountain Securities Conference spoke candidly about this trade-off stating that:

> *[S]ometimes the best choice is not to bring a particular case or advance a particular charge. When deciding how best to allocate the agency's resources, the Commission has to make difficult choices. Enforcement is no exception. As much as we might like to, we simply cannot pursue to the fullest extent each and every possible violation of the securities laws. We have to make tradeoffs — reflective of our policy determinations — in light of the relevant costs and benefits that attend our different options.*
>
> *One cost that must be accounted for is the opportunity cost of the time and effort we spend on a particular matter. Even when we pursue a meritorious case, there is an opportunity cost that may argue for allocating the Commission's resources differently. Resources committed to a particular matter become unavailable for some other — perhaps better — purpose. Put simply, if we commit resources to aggressively pursue case A our ability to pursue case B may be compromised. (Paredes, 2011)*

IRS commissioner Charles Rettig in responding to questions about why there were **100 times** more Earned Income Tax Credit (EITC) Audits which target more rural and lower income taxpayers than High Income High Wealth Audits also said the following "EITC correspondence audits are the most efficient use of available IRS examination resources with the average time to complete the audit of 5 hours per return" (Rettig, 2019). Both accounts, from the regulatory agencies' respective commissioners no less, lend additional credence to our model.

Theoretical contributions

Our research has the potential to make several theoretical contributions. First, we try to establish a theory of regulatory enforcement beyond the traditional utility maximization and

regulatory capture models. We show that regulators will go for easy prey; organizations that are smaller and less developed by looking at distinct resources/capabilities they might have. These firms are less likely to ignore regulatory pressures and more likely to comply, and are therefore the most optimized use of the regulator's resources. We therefore address calls by Hiatt and Park (2013, 923) to go beyond the focus on policy and rather address "neglected policy implementation by regulatory agencies" which they consider to be a serious omission. We are also, to our knowledge, the first to utilize the concept of corporate opportunity structures and political opportunity in the realm of regulatory agencies and public politics.

Second, our paper looks at the simultaneity between regulatory actions and the regulated firms by showcasing the complex dynamics of how the expected ex-ante ignoring or resistance of target firms affects whether regulators decide to enforce or not. This is an important finding that could help not only better elucidate the relationship between regulators and target firms, but also what steps are taken by both to maximize their utility. This also has the potential to change the way we've interpreted past findings. For example, Heese (2019) has found that larger firms are less likely to be subjected to regulatory enforcement. Though the arguments made there were predicated on regulatory capture theory, we gently counter that a major understudied reason why that could be the case is that there is a correlation between being large, and having significant resources to be tough.

Third, this paper has significant consequences for the extant organizational violations and misconduct literature, where the implicit assumption has been that the most severe violators (Lemos & Stein, 2010; Osofsky, 2014) or the most visible firms are looked at (Duro, Heese, & Ormazabal, 2019; Heese, 2019). Conclusions from this literature then assumes that nearly all wrongdoing is known and subjected to enforcement. As such, sampling techniques there rarely

capture an unbiased population. Rather, they focus on those firms which were either unsuccessful in evading detection, or those for which the regulator decides to subject to regulatory enforcement or prosecution. If in fact those samples are comprised of smaller and less harmful organizations, this would prompt us to look at a lot of the conclusions in that literature. This also highlights the importance of looking at the illegal context, to get a cleaner setting by which to study the regulatory environment, given that all firms within the informal setting are technically operating outside the boundaries of the law.

Finally, this is one of the first papers to empirically look at outcomes resulting from firms within the informal and illegal settings. Although the informal economy accounts for about 41 percent and 18 percent of developing and OECD countries' official GNI respectively (Schneider, 2002), few studies within the management literature have looked at firms within this sector (Bruton et al., 2012; Cannatelli et al., 2019; Darbi et al., 2018; McGahan, 2012), mostly due to the difficulty of collecting data about illegal activities.

Implications for organizations and regulatory agencies:

There are also managerial and policy implications that result from our research. We show that having a reputation of toughness with regulators is potentially beneficial for firms over the long run. Organizations who always play tough develop a reputation for that toughness. This is then used by regulatory agencies to assess whether these firms should be targeted in the first place. Although investing in developing that reputation could be costly, firms could also end up saving significantly on future regulatory costs if they are then subsequently not targeted.

We suggest that regulatory agencies should also develop a reputation for toughness and should try to showcase the high cost of ignoring or fighting back. A projection of toughness may yield outsized dividends not for any single case, but for all cases through a deterrence effect (Yiu

et al., 2014). Moreover, this strategy could deter some firms from trying to engage in fighting back or ignoring the regulatory agency to begin with if their non-compliance can be perceived as expensive. Additionally, regulatory agencies should incentivize cooperation for target firms by providing them with avenues of outsized returns if they cooperate (relative to if they ignore or fight back). This could help in maintaining resources whilst getting maximal benefits.

Limitations and Future Directions

We recognize that our paper has certain limitations. First, we are unable to detect ex-ante whether pharmacies are part of a larger network or not. The regulator might decide to target the worst offenders not on a website level, but at the conglomerate level. In this instance, the FDA could be targeting the worst offenders by targeting one group that has hundreds of small IOPs. It is very difficult to ascertain whether pharmacies are linked because there are easy identifiers in the IOPs for the owners of the website. We acknowledge the limitation, and suggest that this indeed could be an interesting direction for future research.

We also assume that regulators anticipate ex-ante whether firms would be costly to prosecute or not and what the benefits of targeting and prosecuting them can be. Although our results are robust, and anecdotal evidence from regulators beyond the FDA suggests that this occurs, we are still not entirely sure whether these are top-level strategic considerations by the heads of the regulatory agencies, or sober practical assessments from the field workers given the resource constraints. Given that our sample runs from January 2017 to June 2020 (i.e. within a single administration), an interesting future direction for research then is to run analyses over a longer period of time and a larger number of administrations (i.e. both Democrat and Republican administrations) and see whether our results hold, suggesting that this is a bottom-top approach, or whether there are drastic changes suggesting policy and strategic variances in a top-bottom

policy. Additionally, taking a more qualitative look at how regulators conceptualize costs and benefits for potential regulatory targets could be a fruitful endeavor of future research.

Additionally, although some anecdotal evidence suggests that the same effect that we found in the FDA is happening with regulators throughout the United States (e.g. the IRS and the SEC) as well as in other countries, we acknowledge that we are potentially limited in our understanding of the boundary conditions. Do regulatory agencies change their strategies depending on salience, or different budgetary constraints? Do regulatory agencies in countries that have different levels of trust public institutions behave in the same way? We think these are important considerations to look at as potential next steps.

In sum, our paper attempted to shed light on who regulators target by reconceptualizing how they look at the costs alongside the benefits. We believe this provides a more enriching view by which to understand how regulatory agencies work, and hope that future research will further explore this practically salient and theoretically relevant topic.

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Table 1. Descriptive statistics and correlation matrix

Variables	Obs.	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Warning	9,898	.01	.08	1.00													
(2) Loyalty	6,967	.20	.17	-0.05*	1.00												
(3) Keyword Popularity	8,612	1.03	1.39	-0.04*	0.09*	1.00											
(4) Ranking (log)	8,612	4.39	.44	-0.08*	0.10*	0.04*	1.00										
(5) Words in homepage	6,755	1,044.06	1,076.11	-0.01	0.07*	0.06*	0.06*	1.00									
(6) Number of pictures	6,748	7.16	13.57	0.00	0.04*	0.14*	-0.19*	0.04*	1.00								
(7) Top products	6,748	.56	.49	0.00	0.06*	0.03*	0.00	0.25*	0.05*	1.00							
(8) Drug category	6,748	.43	.49	0.04*	-0.05*	-0.01	-0.24*	0.22*	0.34*	0.30*	1.00						
(9) Pharmacist picture	6,748	.38	.48	0.02	-0.08*	0.02	0.00	0.04*	0.14*	0.13*	0.03*	1.00					
(10) Testimonials	6,748	.23	.41	-0.01	0.06*	-0.06*	0.01	0.06*	-0.01	0.12*	0.10*	0.17*	1.00				
(11) Phone	6,748	.65	.47	-0.04*	-0.02	0.10*	0.01	-0.08*	0.02	-0.04*	-0.05*	0.01	0.04*	1.00			
(12) Account	6,748	.45	.49	-0.04*	0.10*	0.04*	0.20*	0.02	-0.11*	-0.02	-0.07*	-0.12*	0.00	0.12*	1.00		
(13) Pharmaceutical seals	6,748	.71	1.21	-0.04*	-0.01	0.12*	-0.01	-0.16*	-0.02	-0.02	-0.11*	-0.04*	-0.03*	0.35*	0.09*	1.00	
(14) Articles	9,385	.5	.41	0.06*	0.06*	-0.01	-0.01	0.01	0.00	-0.01	0.02	0.02	0.01	-0.01	-0.02	-0.01	1.00

* $p<0.05$

Table 2. Cox proportional hazards models of main effects

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Words in homepage	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of pictures	-0.003	0.009	0.003	-0.003	0.018
	(-0.011)	(-0.009)	(-0.012)	(-0.011)	(-0.012)
Top products	-0.284	-0.355	-0.266	-0.234	-0.234
	(-0.305)	(-0.37)	(-0.312)	(-0.318)	(-0.376)
Drug categories	0.735*	0.599	0.680*	0.518	0.336
	(-0.319)	(-0.391)	9-0.34)	(-0.347)	(-0.433)
Picture of the pharmacist	0.347	0.542	0.528+	0.574+	0.708+
	(-0.286)	(-0.348)	(-0.294)	(-0.302)	(-0.362)
Patient testimonials	-0.157	-0.439	-0.136	-0.188	-0.629
	(-0.36)	(-0.499)	(-0.366)	(-0.367)	(-0.512)
Phone	-0.561+	-0.47	-0.335	-0.318	-0.111
	(-0.289)	(-0.353)	(-0.303)	(-0.307)	(-0.367)
Account	-0.425	-0.315	-0.522+	-0.252	-0.296
	(-0.304)	(-0.361)	(-0.31)	(-0.321)	(-0.383)
Pharmaceutical seals	-0.337+	-0.591*	-0.275	-0.413*	-0.789*
	(-0.181)	(-0.283)	(-0.179)	(-0.194)	(-0.32)
Articles	0.537	0.445	0.865+	0.968*	0.9
	(-0.352)	(-0.454)	(-0.476)	(-0.49)	(-0.6)
Loyalty		**-2.567***			**-2.125+**
		(-1.252)			**(-1.191)**
Keyword popularity			**-0.482***		**-0.486+**
			(-0.212)		**(-0.25)**
Ranking (log)				**-0.944****	**-0.947***
				(-0.304)	**(-0.427)**
Observations	6,437	6,294	5,908	5,908	5,771
Websites	300	288	273	273	263
Log likelihood	-272.471	-176.784	-242.471	-241.758	-157.774
Chi-Square	25.11**	29.61**	30.34**	31.77***	38.17***

Estimates are coefficients (not hazard ratios); Standard errors are in parenthesis
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 3. Robustness checks

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
DV	Visits(log) [a]	Warning	Warning	Time to warning	Time to warning
Loyalty	**3.933*** **	**-2.060+**	**-1.906+**	**-2.105+**	
	(0.353)	**(1.205)**	**(1.129)**	**(1.190)**	
Keyword Popularity	**0.108***	**-0.476***	**-0.419+**	**-0.457+**	2.537+
	(0.042)	**(0.210)**	**(0.242)**	**(0.246)**	(1.414)
Ranking (log)	**0.451****	**-0.832***	**-0.863***	**-0.875***	-0.474
	(0.137)	(0.394)	(0.393)	(0.433)	(0.390)
Words in homepage	0.000**	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of pictures	-0.001	0.013	0.014	0.017	0.005
	(0.006)	(0.010)	(0.011)	(0.012)	(0.013)
Top products	-0.050	-0.208	-0.198	-0.258	-0.163
	(0.147)	(0.374)	(0.371)	(0.377)	(0.317)
Drug categories	-0.220	0.681	0.646	0.321	0.378
	(0.145)	(0.448)	(0.422)	(0.429)	(0.358)
Picture of the pharmacist	-0.300*	0.713*	0.690*	0.681+	0.604*
	(0.118)	(0.348)	(0.350)	(0.363)	(0.303)
Patient testimonials	0.198	-0.650	-0.602	-0.591	-0.234
	(0.164)	(0.480)	(0.486)	(0.513)	(0.368)
Phone	0.032	0.013	0.009	-0.097	-0.234
	(0.147)	(0.384)	(0.367)	(0.365)	(0.309)
Account	0.413**	-0.161	-0.152	-0.266	-0.315
	(0.152)	(0.412)	(0.378)	(0.383)	(0.324)
Pharmaceutical seals	0.282***	-0.670*	-0.597*	-0.670*	-0.380+
	(0.066)	(0.321)	(0.267)	(0.325)	(0.194)
Articles		1.289***	1.319***	0.851	0.846+
		(0.270)	(0.365)	(0.600)	(0.468)
Keyword Popularity × Ranking					**-0.699***
					(0.339)
Constant	4.358***	-1.698	-1.539		
	(0.641)	(1.834)	(1.762)		
Observations	5,978	5,978	5,978	4,734	5,908
Websites	267	267	267	250	273
Log likelihood		-184.301	-158.58	-157.11	-237.104
Chi-Square (F-statistic)	(21.15***)	103.92***	43.57**	29.12***	41.07***

Estimates are coefficients (not hazard ratios); Standard errors are in parenthesis

[a] Clustered standard errors

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

CHAPTER 5

CONCLUSION

Studying the informal economy and the illegal sector has long been challenging despite its importance and size (Schneider, 2002). First, much of the extant literature on the informal economy has long been spread across a disparate number of disciplines including sociology (e.g. Gaughan & Ferman, 1987), economics (e.g. Lemieux, Fortin, & Fréchette, 1994; Ulyssea, 2018), anthropology (e.g. Hart, 1985), and more recently management ((Bruton, Ireland, & Ketchen, 2012; McGahan, 2012). Second, it is extremely difficult to collect data on illegal activities which is why we continue to see a dearth in quantitative and qualitative research on the informal sector, and even when possible, sampling biases may persist. This latter point has contributed to a research stream that is mostly phenomenological, normative or theoretical in nature. Even when not, the focus is nearly always on the antecedents of informality.

Towards a positivist agenda for the informal economy

I argue that the idiosyncratic features of the informal sector make this an important context by which to explore and build management theories. For example, legitimacy (Webb, Tihanyi, Ireland, & Sirmon, 2009), trust (Bruton et al., 2012; Lee & Hung, 2014), and competing fundamental priorities (Williams & Nadin, 2012) are differently held by different stakeholders within this context. By calling on management scholars to explore a positivist agenda for the informal economy, it is my opinion that we will not only get a better understanding of the illegal sector, but that management literature would be duly enriched as a result.

In this dissertation I seek to do exactly that. I provide three interrelated empirical essays that not only explicate how different stakeholders interact in the informal economy, but also

contributes to our broader understandings of management theories. In the first essay, I explore trust outcomes by external audiences resulting from the use of multiple certifications. In contrast with extant theory, I propose that at a certain point adding new certifications may actually be detrimental as consumers become conscious of the persuasion attempts, and start detecting ulterior motives of persuasion agents. This prompts suspicion on the part of these external audiences and degrades trust outcomes. Consequently, I show using IOP data between 2017 and 2020, that the number of certifications has an inverted U-shaped effect on customers' trust, and provide support that both confirmatory bias and persuasion knowledge mechanisms drive this effect. In this paper, I contribute to certification theory by introducing how processing and assessing certifications might make audiences consider the underlying motives, and could lead to suspicion; to impression management by exploring additional ways in which impression management can backfire; and to the persuasion knowledge model by showing how it could be applied into contexts where distrust and suspicion are especially salient.

In the second essay, I look at impression management claims about how a firm "has fixed a problem" to posit that customers might not always know ex-ante whether firms have problems or not. I build off of that to demonstrate that firms who make claims about solving problems might see a variance in performance based on firm or user characteristics. Those who perceive the firm to be unsafe based on these characteristics will focus on the fix. However, those who perceive the firm to be safe will focus on the problem instead, thereby decreasing performance. In this paper I contribute to the literature on certification and impression management by showing how these techniques can backfire based on differently held ex-ante expectations; to expectancy violations theory by providing a microlevel lens when discussing how these expectations come to be; as well as a novel empirical method to test out theories that utilize user

characteristics and intentions by looking at search as an antecedent towards micro-level judgments.

In the final essay we apply corporate opportunity structures to show that regulators might be targeting smaller and less developed organizations that have less hard-to-build resources/capabilities, and that are therefore less likely to resist, rather than necessarily targeting the most hazardous violators or the worst offenders. I provide support that they do this because it is the most optimized use of the regulator's resources to maximize its utility function. In this paper, I contribute to regulatory enforcement theories by providing a new model that looks at which firms are more likely to be targeted by regulatory agencies. With this model, I also suggest that scholars in the organizational violations and misconduct literatures need to be cognizant of their sampling biases and how that could affect their conclusions. These three papers highlight the importance of pursuing a positivist agenda when looking at the illegal sector.

Challenges and Directions for Future Research

Still there are numerous challenges and many potential avenues of future research that should be looked at. First, although data collection within the informal sector has always been very challenging, it is now easier to find and collect such data. An agglomeration of firms operating illegally are emerging in different social media or ecommerce platforms. Informal stores in global platforms and super-apps that sell everything from high-end watches to baby products are popping up in the Middle East, and East and South-East Asia. This offers opportunities for improved sample selection but also for better and wider data collection. For the more daring scholars, the Dark Web, similarly provides an interesting avenue to collect a wide array of data on activities that are highly illegal. These data collection endeavors could lead to a renaissance in research on the illegal sector.

Second, there is still much to explore within this sector beyond the antecedents of informality and illegality, and I include here three examples. First, looking at settings that combine formality and informality could help us understand how and when legitimation occurs. Second, understanding how pricing works within the informal sector could help us elucidate additional theories about competitive dynamics as well as theories about supply and demand. An interesting proposition here could be to look at how lower prices could theoretically activate persuasion knowledge. Finally, looking at how illegal firms navigate the costs and benefits of agglomeration could be an interesting future avenue for research. Would illegal firms want to stay close to one another so that they are easier to find, or would they want to be closer to their legal counterparts to gain more legitimacy?

My dissertation attempted to shed light on the informal sector by exploring the rich IOP context. I believe that this is important not only for us to better understand the informal sector but also to better theorize and understand longstanding management theories. I hope that future research will keep exploring this practically salient and theoretically relevant topic.

CAPÍTULO 5

CONCLUSIONES

El estudio de la economía informal y del sector ilegal ha sido durante mucho tiempo un reto a pesar de su importancia y tamaño (Schneider, 2002). En primer lugar, gran parte de la bibliografía existente sobre la economía informal se ha repartido durante mucho tiempo entre un número dispar de disciplinas, como la sociología (por ejemplo, Gaughan y Ferman, 1987), la economía (por ejemplo, Lemieux, Fortin y Fréchette, 1994; Ulyssea, 2018), la antropología (por ejemplo, Hart, 1985) y, más recientemente, la gestión ((Bruton, Ireland y Ketchen, 2012; McGahan, 2012). En segundo lugar, es extremadamente difícil recopilar datos sobre actividades ilegales, por lo que sigue existiendo una escasez en la investigación cuantitativa y cualitativa sobre el sector informal, e incluso cuando se recogen datos pueden persistir tendencias de muestreo. Este último punto ha contribuido a que la corriente de investigación sea mayoritariamente de carácter fenomenológico, normativo o teórico. Incluso cuando no es así, la atención se centra casi siempre en los antecedentes de la informalidad.

Hacia una agenda positivista para la economía informal

Sostengo que las características idiosincrásicas del sector informal lo convierten en un contexto importante para explorar y construir teorías de gestión. Por ejemplo, la legitimidad (Webb, Tihanyi, Ireland y Sirmon, 2009), la confianza (Bruton et al., 2012; Lee & Hung, 2014) y las prioridades fundamentales que compiten entre sí (Williams y Nadin, 2012) son sostenidas de manera diferente por las distintas partes interesadas en este contexto. Si se pide a los estudiosos de la gestión que exploren una agenda positivista para la economía informal, creo que no solo

obtendremos una mejor comprensión del sector ilegal, sino que, como resultado, la literatura sobre gestión se verá debidamente enriquecida.

En esta tesis pretendo hacer exactamente eso. Aporto tres ensayos empíricos interrelacionados que no sólo explican cómo interactúan las diferentes partes interesadas en la economía informal, sino que también contribuyen a que logremos una comprensión más amplia de las teorías de gestión. En el primer ensayo exploro los resultados de la confianza por parte del público externo resultantes del uso de múltiples certificaciones. En contraste con la teoría existente, propongo que, en un momento dado, añadir nuevas certificaciones puede ser realmente perjudicial, ya que los consumidores son conscientes de los intentos de persuasión y empiezan a detectar los motivos ocultos de los agentes de persuasión. Esto provoca la sospecha por parte de este público externo y degrada los resultados de la confianza. En consecuencia, muestro, utilizando datos de FOIs entre 2017 y 2020, que el número de certificaciones tiene un efecto en forma de U invertida sobre la confianza de los clientes, y respaldo que tanto la tendencia confirmatoria como los mecanismos de conocimiento de la persuasión impulsan este efecto. En este artículo contribuyo a la teoría de la certificación introduciendo cómo el procesamiento y la evaluación de las certificaciones pueden hacer que el público analice los motivos subyacentes, lo que podría conducir a la sospecha; a la gestión de la impresión explorando formas adicionales en las que la gestión de la impresión puede ser contraproducente; y al modelo de conocimiento de la persuasión mostrando cómo podría aplicarse en contextos donde destacan especialmente la desconfianza y la sospecha.

En el segundo ensayo, examino las afirmaciones de la gestión de la impresión sobre cómo una empresa "ha solucionado un problema" para plantear que los clientes podrían no saber siempre ex-ante si las empresas tienen o no problemas. A partir de ahí, demuestro que las

empresas que afirman haber resuelto los problemas pueden ver una variación en el rendimiento en función de las características de la empresa o del usuario. Los que perciben que la empresa es insegura en función de estas características se centrarán en la solución. Sin embargo, los que perciben que la empresa es segura se centrarán en el problema, con lo que el rendimiento disminuirá. En este artículo contribuyo a la literatura sobre la certificación y la gestión de la impresión mostrando cómo estas técnicas pueden ser contraproducentes en función de las diferentes expectativas ex-ante; a la teoría de los incumplimientos de las expectativas proporcionando una lente de nivel micro cuando se debate la forma en la que se producen estas expectativas; así como un método empírico novedoso para probar las teorías que utilizan las características y las intenciones de los usuarios observando la búsqueda como un antecedente hacia los juicios de nivel micro.

En el último ensayo aplicamos las estructuras de oportunidad de las empresas para demostrar que los organismos de control podrían dirigirse a organizaciones más pequeñas y menos desarrolladas, que tienen recursos/capacidades menos difíciles de construir y que, por tanto, es menos probable que presenten resistencia, en lugar de dirigirse necesariamente a los peores infractores o a los más peligrosos. Respaldo que lo hacen porque es el uso más optimizado de los recursos del organismo de control para maximizar su función de utilidad. En este trabajo, contribuyo a las teorías de aplicación de la ley proporcionando un nuevo modelo que analiza qué empresas tienen más probabilidades de ser el objetivo de los organismos de control. Con este modelo también sugiero que los estudiosos de las infracciones organizativas y la mala conducta deben ser conscientes de sus tendencias de muestreo y de cómo eso podría afectar a sus conclusiones. Estos tres trabajos ponen de manifiesto la importancia de seguir una agenda positivista cuando se examina el sector ilegal.

Retos y Orientaciones para la Investigación Futura

Aún así, existen numerosos retos y muchas vías potenciales de investigación futura que deberían estudiarse. En primer lugar, aunque la recopilación de datos dentro del sector informal siempre ha sido muy difícil, actualmente es más fácil encontrar y recopilar esos datos. En diferentes medios sociales o plataformas de comercio electrónico está surgiendo una concentración de empresas que operan ilegalmente. En Oriente Medio y en el este y el sudeste de Asia están apareciendo tiendas informales en plataformas globales y super-aplicaciones que venden desde artículos de alta gama hasta productos para bebés. Esto ofrece oportunidades para una mejor selección de muestras, pero también para una mejor y más amplia recogida de datos. Para los estudiosos más atrevidos, la Dark Web ofrece igualmente una interesante vía para recopilar una amplia gama de datos sobre actividades altamente ilegales. Estos esfuerzos de recopilación de datos podrían conducir a un resurgimiento de la investigación sobre el sector ilegal.

En segundo lugar, aún queda mucho por explorar dentro de este sector más allá del historial de informalidad e ilegalidad, y aquí incluyo tres ejemplos. En primer lugar, el estudio de entornos que combinan la formalidad y la informalidad podría ayudarnos a entender cómo y cuándo se produce la legitimación. En segundo lugar, entender cómo funciona la fijación de precios dentro del sector informal podría ayudarnos a dilucidar teorías adicionales sobre la dinámica competitiva, así como teorías sobre la oferta y la demanda. Una propuesta interesante en este sentido podría ser estudiar cómo los precios más bajos podrían activar teóricamente el conocimiento de la persuasión. Por último, el estudio de cómo las empresas ilegales gestionan los costes y beneficios de la concentración podría ser una interesante vía de investigación futura.

¿Querrían las empresas ilegales permanecer cerca unas de otras para que sean más fáciles de encontrar, o querrían estar más cerca de sus homólogas legales para ganar más legitimidad?

Mi tesis ha intentado arrojar luz sobre el sector informal explorando el rico contexto de las FOIs. Creo que esto es importante no sólo para que comprendamos mejor el sector informal, sino también para teorizar y comprender mejor las arraigadas teorías de gestión. Espero que las futuras investigaciones sigan explorando este tema tan importante desde el punto de vista práctico y teórico.

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