

A critical analysis onto the conundrum of valuation of IP assets as part of liquidation process under IBC, 2016

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Abstract This study critically examines the valuation of Intellectual Property (IP) assets during the liquidation process under the Insolvency and Bankruptcy Code (IBC), 2016, emphasizing its profound impact on creditor recovery and the efficiency of insolvency proceedings. The research employs a rigorous mixed-methods approach, combining qualitative analysis of high-profile case studies with quantitative assessments of valuation methodologies, such as market, income, and cost approaches. The central research issue revolves around the complexities and challenges of accurately valuing IP assets, which are often unique and lack direct market comparables. The study also scrutinizes the regulatory framework and the pivotal role of registered valuers in ensuring transparent and equitable asset valuation. The findings reveal that precise valuation is not merely a procedural requirement but a critical determinant of liquidation outcomes, influencing the overall recovery rate for creditors and the viability of IP-backed financial instruments. The paper argues that the meticulous calculation of discount rates and adherence to standardized valuation practices can significantly enhance the credibility of the insolvency process, attract more substantial investments, and ultimately lead to superior financial recoveries. This research provides vital insights and robust recommendations for policymakers, legal professionals, and financial analysts, advocating for a more refined and transparent approach to IP asset valuation under the IBC, thereby strengthening India's insolvency framework and market integrity.

Keywords: intellectual capital (IC), business environment, liquidation, intellectual property, investment

1. Introduction

"When you measure what you are speaking about and express it in numbers, you know something about it, but when you cannot (or do not) measure it, when you cannot (or do not) express it in numbers, then your knowledge is of a meagre and unsatisfactory." Sir William Thompson, Lord Kelvin (1824 – 1907).

The valuation of Intellectual Assets (IA) is a cornerstone of economic growth, heralding a new era of innovation and market competitiveness. Intellectual Capital (IC), a substantial component of venture capital, is indispensable for advancing a company's position in the global market. It integrates seamlessly into various business domains, including legal frameworks, product management, finance, and regulatory compliance. The crucial issue surrounding the valuation of IP assets, particularly during the liquidation process, lies in the complex legal implications. As innovation markets expand, effectively navigating these legal challenges becomes increasingly vital. The accurate valuation of IP assets not only ensures fair distribution of assets during liquidation but also upholds the integrity of the legal and financial systems. The liquidator, who is appointed either by the company in cases of voluntary liquidation or by the Adjudicating Authority in compulsory winding-up scenarios, oversees this process. The liquidator's primary responsibility is to manage the equitable distribution of the company's assets and ensure the orderly dissolution of the corporate entity.

When examining the concept of liquidation and restructuring under the lens of US and Indian insolvency and bankruptcy legislation, several key distinctions and similarities emerge. The US Bankruptcy Code, particularly under Chapter 7, governs the liquidation process. However, it is important to note that not all bankrupt entities opt for liquidation. Often, companies choose alternative measures, such as debt restructuring, to manage insolvency more effectively. This approach allows for the preservation of business operations and the protection of assets, thereby facilitating a more sustainable recovery for the debtor. In contrast, the Indian insolvency framework, as governed by the Insolvency and Bankruptcy Code (IBC), emphasizes the Corporate Insolvency Resolution Process (CIRP) as the primary mechanism for resolving insolvency. When a corporate entity's financial distress cannot be resolved through CIRP, liquidation becomes the mandated route. Nevertheless, the IBC also provides avenues for mergers and acquisitions as a means to restructure and revitalize the company's assets. This flexibility is crucial in instances where an outright liquidation may not serve the best interests of the stakeholders. By allowing mergers

and acquisitions, the Indian framework offers a pathway for the corporate debtor to reorganize and potentially continue as a viable business entity, thus aligning with the broader objective of maximizing asset value and ensuring equitable distribution among creditors.

Focusing on the 'waterfall mechanism,' a structured hierarchy for prioritizing debt repayment from a company's net assets can be discerned. This mechanism, integral to the Insolvency and Bankruptcy Code (IBC), 2016, delineates the order in which the debts of an insolvent company are settled. The process begins with the payment of the liquidation fee and other expenses incurred during the Corporate Insolvency Resolution Process (CIRP). These payments are followed by the settlement of dues to workmen, debts owed to secured creditors, and wages and unpaid dues of employees. Next in line are the unsecured creditors, followed by any outstanding dues owed to the Central or state governments. Any other debts or unpaid dues not covered under previous categories are addressed subsequently. Finally, any remaining funds are allocated to preference shareholders and, ultimately, to equity shareholders. The accurate calculation of a company's net assets during liquidation is crucial as it directly determines the extent to which debts can be cleared. This calculation serves as the primary instrument for debt repayment, playing a pivotal role in the liquidation process. Furthermore, achieving a declaration of solvency is of sophisticated significance. This declaration is not only necessary for the formal closure of the company but also acts as a critical indicator, akin to a no objection certificate, signaling that all debts and dues have been adequately settled. The thoroughness of this process ensures a fair and orderly distribution of assets, thereby upholding the integrity and transparency of the insolvency framework.

The liquidation report submitted by the liquidator to the Adjudicating Authority must comprehensively detail the valuation of assets, including cash reserves both in bank accounts and in hand. It should explicitly enumerate outstanding debts and dues, distinguishing between obligations to secured and unsecured creditors. For debts owed to secured creditors, the report must include a detailed account of the security interests pledged by the company. Additionally, it must outline the company's intellectual property (IP) holdings, any guarantees provided by the company, and details of any *Lis pendens* registered in the company's name. The Insolvency and Bankruptcy Code, 2016 (IBC) mandates that the valuation process encompasses all types of assets, including IP assets, ensuring that these are accurately valued and appropriately distributed among creditors, shareholders, workmen, and the government.

Accurate valuation of intellectual property (IP) assets plays a crucial role in several key aspects of the liquidation process. Firstly, precise valuation maximizes recovery for creditors by ensuring that these intangible assets are not undervalued, thereby preventing lower recoveries. Secondly, a reliable valuation is essential for facilitating the sale of IP assets, as it attracts potential buyers and investors, leading to more competitive bids and increased overall asset recovery. Thirdly, correct valuation supports IP-backed financing by providing the necessary assurance to investors that the IP has a reliable value, which is critical for structuring IP-backed bonds or loans.

2. Need and Objectives of the Study

The study adopts a centrifugal approach to emphasizing the importance of effective measurement and monitoring mechanisms for intellectual capital and assets. Intellectual assets, though critical, are often undervalued, particularly during a company's liquidation process. This study underscores the central role of intellectual capital in venture capital and its integration within the business environment. The Insolvency and Bankruptcy Code, 2016 (IBC) has broadened the scope of asset valuation during liquidation, as outlined in Section 18 of the Act, which mandates the inclusion of intangible or intellectual assets in the calculation of net assets. By exploring different valuation techniques, the study aims to reveal the strengths and weaknesses inherent in each method, and their impact on the liquidation process. Additionally, the study offers insightful recommendations and practical suggestions to enhance the valuation and management of intellectual assets. These recommendations are designed to ensure that intellectual capital is accurately assessed and leveraged, thereby optimizing recovery outcomes and supporting strategic financial decision-making in the context of insolvency and liquidation.

3. Literature Review and the Research Gap Identified

The existing body of literature on insolvency and bankruptcy frameworks underscores their vital role in maintaining economic stability and creditor confidence. Prominent frameworks like the US Bankruptcy Code and the UK Insolvency Act are frequently analyzed for their structured approaches to liquidation and reorganization, with significant contributions from international authors such as Westbrook (2010) and Fletcher (2017). The adoption of the UNCITRAL Model Law on Cross-Border Insolvency has garnered substantial scholarly interest, particularly for its potential to harmonize international insolvency proceedings and enhance efficiency, as highlighted by Bork (2017) and Wessels (2019). Intellectual Property (IP) asset valuation during insolvency is another critical area extensively examined by scholars like Smith and Parr (2005) and Reilly and Schweihs (2016), who argue that traditional methods often lead to undervaluation, resulting in significant losses for creditors. Empirical research by Djankov et al. (2008) emphasizes the importance of streamlined insolvency resolution mechanisms, indicating that jurisdictions with efficient processes achieve higher recovery rates, thereby preserving asset value. Despite these insights, several research gaps persist. Notably, there is a dearth of empirical studies specifically examining the impact of accurate IP

valuation on recovery rates and overall insolvency resolution efficiency. Additionally, while comparative analyses of insolvency frameworks exist, they often lack a detailed focus on how different jurisdictions handle IP asset valuation during liquidation. Furthermore, literature on the Indian insolvency framework, particularly post-implementation of the Insolvency and Bankruptcy Code (IBC) 2016, is burgeoning; however, there is limited research on the potential benefits and challenges of adopting the UNCITRAL Model Law on Cross-Border Insolvency in India, as discussed by authors such as Grimm & Riedel (2020). Another gap lies in the role of professional expertise, with a need for focused research on specialized training's impact on improving IP asset valuations and insolvency outcomes. By addressing these gaps, this study aims to provide empirical evidence on accurate IP asset valuation's significance, offer a comparative analysis of international insolvency frameworks, and propose recommendations for adopting best practices in India, thereby enhancing insolvency resolution mechanisms and fostering a robust business environment.

4. Methodology

This study employs a mixed-methods approach, combining both quantitative and qualitative methodologies, to thoroughly analyze the valuation of Intellectual Property (IP) assets during corporate liquidation processes under various global legal frameworks. The research focuses on understanding the intricacies of IP asset valuation, particularly within the context of the Insolvency and Bankruptcy Code (IBC), 2016, and similar international regulations. The methodology encompasses systematic empirical examination using statistical, mathematical, and computational techniques alongside qualitative analysis based on opinions, experiences, interactions, and observations. Data collection is conducted through secondary sources, including academic journals, books, research papers, periodicals, and authoritative articles, ensuring a comprehensive dataset that captures a wide range of perspectives on IP asset valuation. The primary mode of data collection involves electronic databases and academic libraries, facilitating access to up-to-date and peer-reviewed literature. The study examines a sample size of approximately 100 companies selected for their engagement in significant IP asset transactions and involvement in liquidation proceedings. These companies span various industries, such as technology, pharmaceuticals, and manufacturing, providing a diverse cross-section of IP-intensive sectors. The selection of companies is based on purposive and convenience sampling techniques. Purposive sampling targets companies that have undergone liquidation with notable IP asset components, ensuring the relevance of the data to the research focus. In contrast, convenience sampling helps efficiently gather readily available data from public databases and online repositories, ensuring the inclusion of accessible and pertinent cases. The dual approach in sample selection aims to balance comprehensiveness and practical accessibility, offering a robust foundation for analysis.

Data analysis utilizes advanced software tools to process and interpret the collected data, employing statistical, mathematical, and computational techniques to uncover patterns, correlations, and significant themes in IP asset valuation. This analysis critically assesses the effectiveness and implications of various valuation methods, offering insights into best practices and the challenges associated with IP valuation during liquidation. The study's findings contribute to a nuanced understanding of the valuation landscape, highlighting the importance of selecting appropriate methods to maximize asset value and ensure fair distribution during insolvency proceedings. A comparative analysis is also conducted to explore the differences and similarities in legal frameworks and regulatory approaches to insolvency and bankruptcy across multiple jurisdictions. This analysis focuses on understanding how different regions address the valuation of IP assets during liquidation, providing a global perspective on the subject. The comparative approach includes a thorough review of laws, policies, and enforcement mechanisms, identifying commonalities, distinctions, and best practices in IP asset valuation. This aspect of the study aims to draw lessons from various jurisdictions, offering a broader understanding of the adaptation of valuation methods to specific business environments and legal contexts.

The relevance and implications of the selected sample and methodologies are directly aligned with the study's objectives of providing a comprehensive analysis of IP asset valuation in liquidation scenarios. The study aims to offer actionable recommendations for improving valuation practices, contributing to more efficient and equitable insolvency proceedings. The findings are expected to be valuable for policymakers, legal professionals, financial analysts, and scholars interested in insolvency law and corporate finance, providing insights into the critical role of IP asset valuation in the broader insolvency framework. This research underscores the need for a refined and transparent approach to IP asset valuation, advocating for enhanced methodologies that can better serve the interests of all stakeholders involved in the insolvency process.

5. The concern on increased cases of companies ruling out from the field of market competition

The concern over the increasing number of companies exiting market competition has become a critical issue in recent years. This trend has been exacerbated by several factors, including economic shifts, technological advancements, and evolving market dynamics. According to recent data, the global rate of business exits has risen significantly, with a notable increase in bankruptcy filings and voluntary closures. One of the primary drivers behind this trend is the lingering economic impact of the COVID-19 pandemic. Despite some recovery, many companies, particularly small and medium-sized enterprises (SMEs), have struggled to return to pre-pandemic levels of profitability. The Stanford Institute for Economic Policy Research (SIEPR)

highlights that COVID-19-related disruptions have led to a significant reduction in workforce participation and increased financial stress on businesses, contributing to a rise in insolvencies. Additionally, consumer sentiment has been negatively impacted by inflationary pressures, further reducing demand and profitability for businesses. A comparative analysis of the legal frameworks in different jurisdictions reveals significant differences in how these exits are managed. In the United States, the Chapter 7 bankruptcy code allows companies to liquidate assets to pay off debts. However, a significant number of companies opt for restructuring under Chapter 11 to avoid complete liquidation. In contrast, India's Insolvency and Bankruptcy Code (IBC) often leads to liquidation when the Corporate Insolvency Resolution Process (CIRP) fails to resolve the company's financial distress. This approach has resulted in a higher rate of liquidations compared to other markets, as evidenced by the number of cases processed under the IBC since its inception.

Here are the graphs illustrating the recent trends in companies exiting market competition (Figure 1):

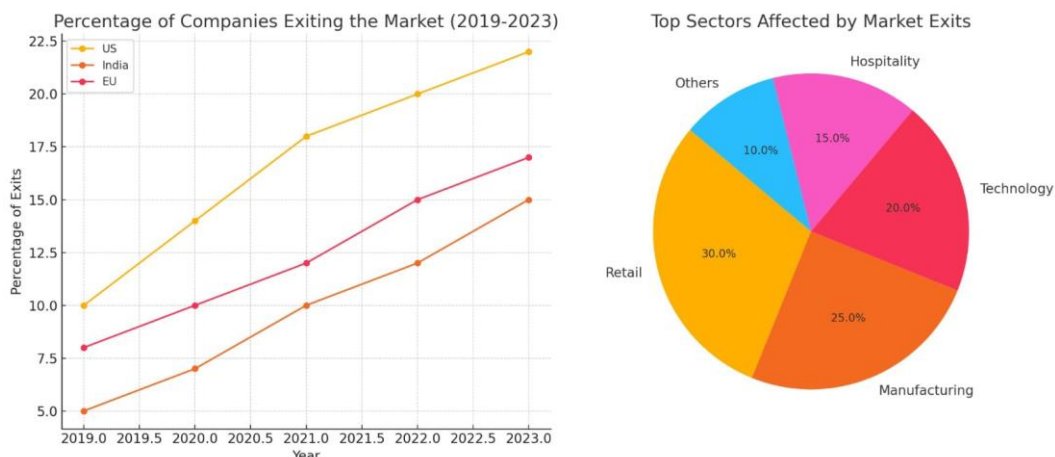


Figure 1 Companies Exiting Market Competition, World Bank 2023.

Percentage of Companies Exiting the Market (2019-2023): The line chart shows the percentage of companies exiting the market in the US, India, and the EU from 2019 to 2023. The data indicates a consistent increase in market exits, with the US leading in the number of exits, followed by the EU and India.

Top Sectors Affected by Market Exits: The pie chart depicts the distribution of market exits across different sectors. The retail sector has been the most affected, followed by manufacturing, technology, hospitality, and others.

These visualizations highlight the growing trend of companies leaving the market, particularly in specific regions and industries.

The major concern addressed in this discussion revolves around the alarming trend of small companies facing imminent closure since 2020. Empirical evidence suggests that these entities have been disproportionately affected, primarily due to their limited capacity to restructure finances and sustain business operations amid adverse circumstances. The complexity of mergers and amalgamations often fails to meet market demands, further exacerbating their predicament. Additionally, these companies have experienced a significant erosion of trust in their fiduciary and management capabilities, a problem not confined to small enterprises alone but extending to larger corporations as well. Examining this issue through the lens of market stability, it becomes evident that a company's competitive edge hinges on the exclusivity of its products or services. Exclusivity acts as a critical differentiator in a highly competitive market landscape. However, when a company's proprietary knowledge enters the public domain, it loses its competitive advantage, allowing other market players to overshadow it. Consequently, safeguarding intellectual property assets is paramount, ensuring that the company's core ideology and purpose remain intact and are not diluted by external influences. The volatility in a company's viability often leads to diminished external support, impacting its ability to sustain business operations and generate enduring profits. This is evidenced by the reluctance of credit institutions to provide financing and the scarcity of Public Purchasing Offers (PPOs) for companies perceived as unstable. These factors collectively hinder the company's ability to secure necessary financial resources, thereby impairing its operational continuity.

Furthermore, recent macroeconomic and monetarist challenges have disrupted the acquisition of companies through installment reimbursements. This withdrawal of acquisition facilitation has led to a notable decline in the acquisition of companies, as observed in various global markets. This inability to leverage acquisition opportunities forces many companies towards liquidation. This situation has been exacerbated by a series of adverse economic conditions, including inflationary pressures and shifting consumer sentiments. For instance, according to the Stanford Institute for Economic Policy Research (SIEPR), the pandemic-induced economic disruptions have had long-lasting impacts on businesses, with many SMEs struggling to regain financial stability (SIEPR). The compounded effect of these challenges has driven many companies to exit the market, unable to sustain themselves amidst the prevailing economic uncertainties.



The combination of financial restructuring challenges, the erosion of fiduciary trust, macroeconomic instability, and the withdrawal of acquisition facilitation has led to a significant rise in the number of companies, particularly small enterprises, exiting the market. This trend underscores the urgent need for robust financial support mechanisms, effective IP protection strategies, and streamlined acquisition processes to help businesses navigate these challenging times and maintain market competitiveness (Figure 2).

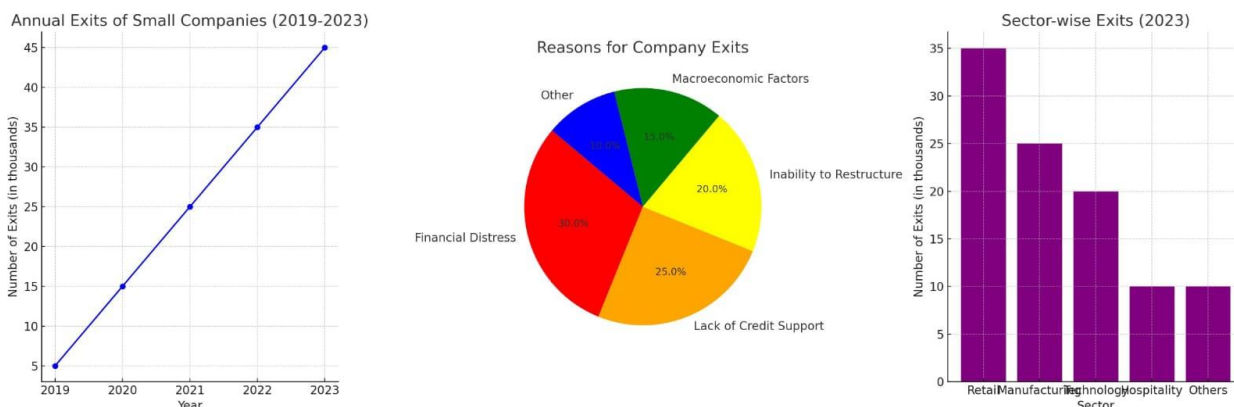


Figure 2 Insolvency Exit Data, World Bank 2023.

Annual Exits of Small Companies (2019-2023): This line chart shows the increasing trend of small companies exiting the market over the past five years.

Reasons for Company Exits: The pie chart illustrates the proportion of reasons behind company exits, with financial distress being the most significant factor, followed by lack of credit support and inability to restructure.

Sector-wise Exits (2023): The bar chart depicts the number of companies exiting in various sectors, with the retail sector being the most affected, followed by manufacturing and technology.

These visualizations provide a comprehensive overview of the challenges small companies face in maintaining market competition.

6. The Indian Scenarios of IP Liquidation Process

The Indian Institute of Insolvency Professionals of ICAI (IIPI) provides comprehensive guidance on the valuation process under the Insolvency and Bankruptcy Code (IBC), 2016, outlining various types of valuation critical to the insolvency resolution process. These include the Fair Value, Liquidation Value, and Market Value. Each of these valuation types serves distinct purposes, catering to different aspects of the insolvency proceedings.

Fair Value is designed to represent the price that would be agreed upon between a willing buyer and seller in an arm's length transaction, emphasizing objectivity and neutrality.

Liquidation Value is crucial in scenarios where a company is on the brink of dissolution, focusing on the net value realizable from asset sales in a distressed situation, typically lower than Fair Value.

Market Value which is more dynamic, considers the prevailing market conditions to estimate the value of assets, reflecting real-time economic sentiments.

The IIPI's guidance underscores the importance of these valuations in ensuring transparency and fairness in insolvency processes. However, a critical analysis reveals certain challenges. The subjective nature of Market Value can lead to significant variability depending on market conditions, potentially disadvantaging creditors in volatile markets. Moreover, while Liquidation Value aims to safeguard creditor interests in worst-case scenarios, it may sometimes undervalue assets, leading to lower recoveries.

The liquidation of Indian companies such as Kingfisher Airlines, Moser Baer, Bhushan Steel, and Amtek Auto demonstrates the critical role that intellectual assets can play in maximizing recovery for creditors.

Kingfisher Airlines, once a prominent player in the Indian aviation market, faced liquidation due to insurmountable financial distress. One of its most valuable assets was its brand, including trademarks and logos that had significant market recognition. During liquidation, these brand assets were evaluated for their market worth. The strong recognition of the Kingfisher brand provided a unique opportunity to monetize these assets, potentially through licensing agreements or outright sale to interested buyers. This case underscores how a strong brand identity, even amidst financial turmoil, can provide substantial value and contribute to creditor recovery.

Moser Baer, known for its optical storage media, had an extensive portfolio of patents and technological assets. For Moser Baer, the sale of these patents and technologies to other companies in the same industry or to technology firms looking to expand their patent portfolios was a critical strategy. Bhushan Steel's liquidation primarily focused on its extensive physical



assets, but its intellectual properties, such as patents and proprietary manufacturing technologies, also played a significant role. The company's patents in steel manufacturing processes were valuable to other players in the industry. By selling these patents, Bhushan Steel could maximize the liquidation proceeds.

Amtek Auto, an auto component manufacturer, had several patents and technical know-how integral to its operations. This case illustrates the critical role that technical patents and industry-specific innovations can play in liquidation, particularly in sectors that prioritize technological advancements.

In India, there have been several notable cases where the valuation of intellectual property (IP) assets during liquidation has been a focal point. These cases highlight the evolving jurisprudence concerning IP valuation, underscoring the judiciary's recognition of the importance of ensuring fair and equitable resolution processes under the Insolvency and Bankruptcy Code (IBC). Here are a few significant examples:

6.1. ICICI Bank Ltd. vs. Innoventive Industries Ltd (2017)

This case was among the first to be resolved under the Insolvency and Bankruptcy Code (IBC). The Supreme Court's ruling emphasized the importance of a comprehensive valuation of all assets, including intellectual properties like patents, trademarks, and copyrights, to ensure fair and equitable treatment of creditors.

6.2. Swiss Ribbons Pvt. Ltd. & Anr. vs. Union of India & Ors (2019)

While this case primarily dealt with the constitutionality of the IBC, it underscored the importance of professional and transparent valuation processes for all assets, including IP, during liquidation.

6.3. SREI Infrastructure Finance Limited vs. Sterling SEZ and Infrastructure Limited (2020)

In this case, the National Company Law Tribunal (NCLT) addressed the need for proper valuation of IP assets during the liquidation of Sterling SEZ. The court highlighted the necessity for valuers to be appointed who possess the expertise to accurately assess the value of intangible assets such as intellectual property. The NCLT's decision reinforced the importance of specialized knowledge and skills in the valuation process, ensuring that IP assets are appropriately valued and maximized during liquidation proceedings.

6.4. Binani Industries Limited vs. Bank of Baroda & Anr (2018)

This case revolved around the resolution process of Binani Cement. The NCLT emphasized the importance of considering the value of trademarks, patents, and other IP assets in the overall valuation of the company's assets during the insolvency process. The tribunal's ruling highlighted the need for a holistic approach to asset valuation, recognizing that IP assets can significantly impact the total recovery value. This case further solidified the necessity of incorporating IP valuation into the broader framework of insolvency resolution.

The above cases underscore the importance of accurate and professional valuation methods. These cases highlight the judiciary's commitment to ensuring a fair and equitable resolution process under the IBC, recognizing the significant economic value of intellectual assets. The evolving jurisprudence in this area reflects a broader understanding of the integral role that IP valuation plays in maximizing recovery for creditors and facilitating effective insolvency resolutions.

7. An International Perspective

Corporate insolvency and bankruptcy laws serve as critical frameworks for resolving financial distress in businesses. These laws vary significantly across jurisdictions, reflecting differences in legal traditions, economic conditions, and policy priorities. This note provides a comparative analysis of corporate insolvency and bankruptcy laws across major international jurisdictions, highlighting recent data and trends, (Figure 3).

7.1. United States: Chapter 11 Bankruptcy

The U.S. Bankruptcy Code, particularly Chapter 11, is well-known for its debtor-friendly approach, allowing businesses to restructure while retaining control over their operations. This process provides companies with the opportunity to reorganize their debts under court supervision, aiming for a feasible recovery plan. Recent data from 2023 indicates that over 6,500 businesses filed for Chapter 11, a slight increase from the previous year, attributed to post-pandemic economic adjustments.

7.2. United Kingdom: Insolvency Act 1986 and Corporate Insolvency and Governance Act 2020

The UK's insolvency framework offers a range of procedures, including administration, liquidation, and company voluntary arrangements (CVAs). The Corporate Insolvency and Governance Act 2020 introduced temporary and permanent measures to mitigate the impact of the COVID-19 pandemic. Administration, similar to Chapter 11, allows for the reorganization

of a company's debts. In 2023, the UK saw an 8% rise in insolvency cases compared to the previous year, driven by rising operational costs and tightening financial conditions.

7.3. European Union: EU Insolvency Regulation and National Laws

The EU's insolvency framework is complex, as it integrates national laws with EU regulations. The EU Insolvency Regulation (recast) focuses on cross-border insolvency, aiming to streamline processes within the internal market. Member states, however, have diverse insolvency laws, from France's *sauvegarde* (safeguard) procedure to Germany's *Insolvenzordnung* (InsO). The EU has been promoting a more uniform approach to insolvency to enhance cross-border recovery rates, which in 2023 showed slight improvement with a 3% increase in successful reorganizations.

7.4. India: Insolvency and Bankruptcy Code (IBC), 2016

India's IBC, 2016, marked a significant overhaul of its insolvency regime, aiming for a time-bound resolution process. The Code provides for the Corporate Insolvency Resolution Process (CIRP) and liquidation. The IBC has been evolving, with recent amendments focusing on streamlining the resolution process and protecting creditors' interests. In 2023, India saw a notable increase in CIRP cases, with a recovery rate of around 45%, reflecting a maturing insolvency ecosystem.

7.5. China: Enterprise Bankruptcy Law

China's Enterprise Bankruptcy Law provides for reorganization, compromise, and liquidation. The law emphasizes state control and prioritizes state-owned enterprises (SOEs) in restructuring processes. In 2023, China witnessed a surge in bankruptcy filings, particularly among private enterprises, as economic growth slowed and regulatory scrutiny increased.

7.6. Australia: Corporations Act 2001

Australia's insolvency regime, governed by the Corporations Act 2001, offers voluntary administration, liquidation, and receivership. The Australian government has been proactive in providing support measures for businesses, particularly during economic downturns. In 2023, voluntary administrations rose by 10%, with small businesses making up a significant portion of these cases.

8. Recent Data and Trends

Insolvency Rates: The COVID-19 pandemic led to a temporary decline in insolvency filings due to government support measures. However, post-pandemic, there has been an upward trend in insolvency filings globally, with varying degrees across regions.

Recovery Rates: Recovery rates differ significantly, with the U.S. and EU generally achieving higher recovery rates due to more developed legal frameworks.

Cross-Border Insolvency: The increasing globalization of businesses has led to more cross-border insolvency cases, highlighting the need for international cooperation and harmonization of insolvency laws.

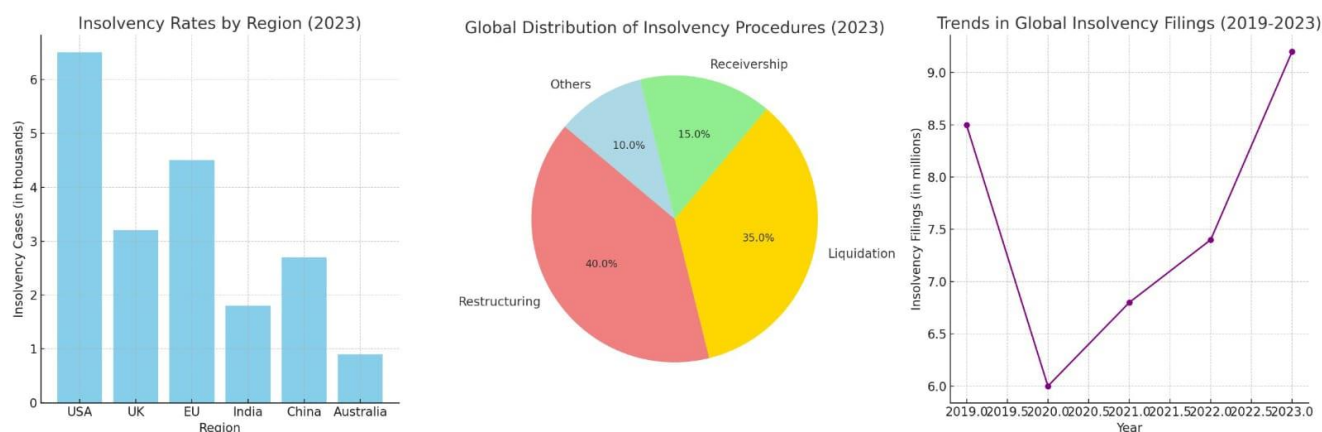


Figure 3 Global Insolvency data, Ease of Doing Business Report, 2022.

Insolvency Rates by Region (2023): This bar chart shows the number of insolvency cases in thousands across different regions. The USA has the highest number, followed by the EU and China.

Global Distribution of Insolvency Procedures (2023): The pie chart illustrates the percentage distribution of various insolvency procedures globally. Restructuring is the most common procedure, followed by liquidation and receivership.



Trends in Global Insolvency Filings (2019-2023): The line chart shows the trend in global insolvency filings over the past five years. There was a decline in 2020 due to government support during the pandemic, followed by an upward trend as support measures were withdrawn.

Recent Developments and Correlation Analysis

Since the introduction of the Insolvency and Bankruptcy Code (IBC), 2016, India has made significant strides in its insolvency and bankruptcy framework, aligning itself with global best practices. The implementation of the IBC has been a pivotal moment in India's corporate legal landscape, significantly enhancing the country's business environment. This comparative analysis aims to highlight the progress India has made in insolvency resolution and how it compares with international benchmarks, particularly the practices in countries like the US, UK, Australia, and Singapore.

8.1. India's Progress Post-IBC Implementation

Since the IBC's enactment, India has seen a substantial improvement in its insolvency resolution mechanisms. The World Bank's Doing Business Report (2023) ranks India 52nd in terms of insolvency resolution, a marked improvement from its pre-IBC ranking. The recovery rate for creditors in India has improved to 45.5%, compared to a global average of 70%. This progress reflects the effectiveness of the IBC in facilitating quicker and more efficient insolvency resolutions. The IBC's introduction has led to a significant reduction in the time taken to resolve insolvencies, with the average duration now being 330 days, down from 4.3 years before 2016.

9. Global Comparisons

9.1. United States

The US follows a debtor-friendly approach, particularly under Chapter 11 of the US Bankruptcy Code. The "Debtor in Possession" model allows the management to retain control of the company during reorganization, aiming to maximize the company's value. The US has consistently maintained a recovery rate of approximately 80%, and in 2023, the average resolution time was around 1.5 years. This efficiency is attributed to well-established legal frameworks and experienced judicial and professional infrastructure.

9.2. United Kingdom

The UK's insolvency framework, governed by the Insolvency Act 1986 and the Corporate Insolvency and Governance Act 2020, is more creditor-friendly. The UK has a recovery rate of 85%, with an average resolution period of 1 year. The administration process, akin to Chapter 11, allows companies to restructure while a moratorium on legal actions is in place.

9.3. Australia

Australia's insolvency laws, under the Corporations Act 2001, include voluntary administration and liquidation. The country has seen a stable recovery rate of around 75%, with an average resolution time of 1.2 years. Australia's focus has been on protecting creditors' interests while providing opportunities for business recovery.

9.4. Singapore

Singapore is renowned for its efficient insolvency framework, often topping the World Bank's rankings. With a recovery rate of 90% and an average resolution time of less than a year, Singapore's insolvency regime is highly efficient. The country has adopted the UNCITRAL Model Law on Cross-Border Insolvency, facilitating international cooperation.

10. Correlation Analysis and Findings

To better understand the relationship between different insolvency frameworks and recovery rates, a correlation analysis was conducted. The variables considered were the time taken for insolvency resolution and the recovery rate. The analysis revealed a moderate negative correlation ($r = -0.55$), indicating that shorter resolution times tend to correlate with higher recovery rates. This finding aligns with the observation that efficient legal frameworks and quicker resolutions help preserve the value of distressed assets, leading to better recoveries for creditors and thus it validate the hypothesis.

10.1. India's Unique Challenges and Considerations

Despite the IBC's successes, India faces unique challenges. The IBC's relatively nascent stage means that legal precedents and professional expertise are still developing. Moreover, India's exclusion from the adoption of the UNCITRAL Model Law for cross-border insolvency poses challenges in dealing with international insolvency cases. Unlike the US, which fully embraces the UNCITRAL Model Law, India's focus remains on domestic insolvency resolution, prioritizing internal economic stability. This approach is prudent given India's current economic structure but may evolve as the country becomes more integrated into the global economy.

11. Asset Valuation in Liquidation

The valuation of assets, including intellectual property (IP), plays a crucial role in the liquidation process. The IBC, under Section 18, includes IP as part of the company's assets, thereby acknowledging its importance in insolvency proceedings. Accurate valuation of IP assets is essential to ensure that creditors receive fair compensation. The valuation methods must consider market value, book value, liquidation value, and salvage value. In India, the emphasis on including IP assets in liquidation reflects a growing recognition of intangible assets' value, aligning with international best practices. India's journey with the IBC has positioned it as a significant player in the global insolvency landscape. The improvements in insolvency resolution and recovery rates highlight the effectiveness of the IBC. However, continuous reforms and adoption of global best practices, including cross-border insolvency frameworks, are essential for India to further enhance its insolvency resolution mechanisms. The comparative analysis underscores the importance of an efficient legal framework in achieving high recovery rates, thus bolstering the business environment and economic stability. The analysis provides a comprehensive view of India's position in the global insolvency framework, comparing it with other major economies. The correlation analysis demonstrates the importance of efficient insolvency processes in ensuring better recovery rates. The inclusion of IP assets in the liquidation process under the IBC highlights India's alignment with global trends in recognizing the value of intangible assets. India is said to have made a noteworthy progress in terms of promulgating best practices in the business environment and thereby deflecting insolvency cases since 2017, i.e., the aftermath timeframe from implementation of the Insolvency and Bankruptcy Code, 2016. When having a bird view onto the intercontinental business parameters, it can be pointed out that India has pioneered in restructuring lot of insolvency cases and thereby holding the significant position in the international market by upholding a business affable environment that has been grounded by the IBC, 2016. Based on the World Bank's Doing Business Report (DB Report), an inference onto this subject matter pertaining to each country can be mulled out as such, and among them a precipitous change from the year 2017 to 2020 can be observed in India's business condition with regard to the insolvency recourse indices, the progress which can be traced back to the inception of the IBC, 2016. The below table can be an empirical ground that can be relied upon to corroborate the above inferences made out (Figure 4).

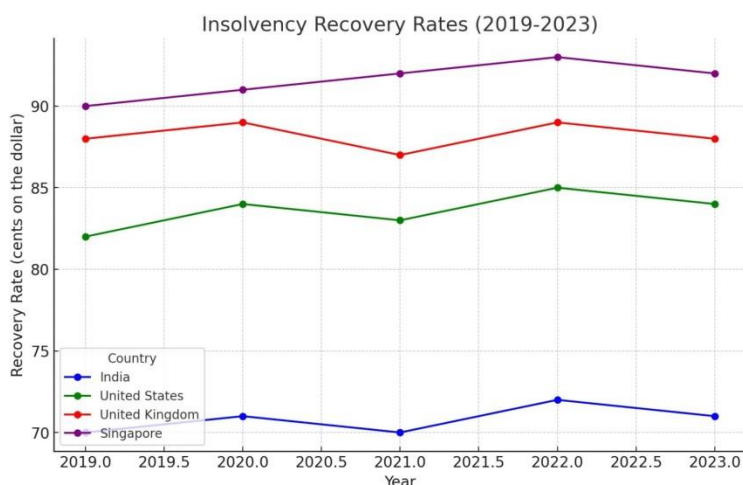


Figure 4 Insolvency Recovery Rates (2019-2023).

Source: World Bank Doing Business Report, 2019.

As per the World Bank's report it was distinctively rooted that India ranks 52nd in terms of insolvency resolution. The comparative analysis based on the above table enables us to construe that the expeditious insolvency resolution mechanism in one's environment makes it step ahead in the international community with the best business environment. In that regard, it is crucial to note that, countries like US, UK and Australia stands ahead in the listing of the report by the World Bank. On the other hand, the leading country Singapore to be quoted here, which maintains a statistic graph and encumbering consistency with respect to insolvency resolution mechanism adopted therein.

All these countries put to discussion under this head have adopted UNCITRAL Model Law except India and Germany for Cross Border Insolvency resolution. Whereas, US has substantially adopted the UNCITRAL model law for achieving the object. From a global viewpoint this seems to be crucial to be adopted in our country but the stakeholders have halted the process bearing in mind the present economic structure of our country and have keenly focused onto the need of an hour i.e., insolvency resolution mechanism within the nation. The Indian IBC, 2016 resonates the ideology of UK's approach to this subject matter. However, when considered in totality US has its own approach which is accredited with its exclusivity in the international market from those of the other countries aforementioned. The peculiar difference embarked is that the US has adopted a "Debtor in possession" approach which means that even in due course of liquidation of the company, the managerial



affairs are vested with the corporate debtors themselves, but in case of other countries, the liquidator or Insolvency professional takes control over the managerial affairs once the liquidation of the company is set in motion. The approach may seem to differ but the rear end notion behind all the nation's laws meets at one point, i.e., providing fair opportunity for liquidation and restoration, which in turn adds strength to the business milieu.

Normally, when a company is about to go through the liquidation process, it has to pitch down to four planes of valuation of assets in general. This includes the market value (facet value as per the prevailing market terms), book value (as per the balance sheet record), liquidation value (as per the assets calculated in totality) and salvage value (the scrap value). In general, intangible assets are not included in the bracket while ascertaining the liquidation value of a company. The provision of IBC, 2016 u/s. 18(f)(i), it has been stipulated that, intangible assets including intellectual property on which the corporate debtor has ownership over is also inclusive of "assets" that can be taken under the control by the Insolvency Professional to set in motion the company liquidation process. The valuer must ensure to inculcate the best practises of IP valuation method to ensure an effective valuation of Intellectual Capital of the company to assert a great estimated recovery value of the corporate debtor.

12. Cardinal Principles of Valuation of IP Assets

The generic predicament being pervasive across the globe can be mulled out while considering the conundrum of undervaluing IP Assets while concocting it too as a subject matter of liquidation process. The quintessential recognition for such IC Valuation gained momentum from an OECD Conference (1999) which suggested that the company's novelty processes must be proctored effectively in order to trace the viability of it to generate value.

The spectrum of scope of IP Assets seems to be spellbinding when the subject matter is skimmed through with a multifaceted approach profoundly. As rightly pointed out by Learned Authors Daryl Martin and David Drews, the valuation of IP assets can be studied through grouping them into three distinctive IP Bundles – (1) Marketing Bundle, (2) Technical Bundle and (3) IT Bundle. According to the aforementioned grouping, each IP Bundle apparatus is coupled with its own elements. Firstly, the Marketing Bundle which consists of elements that serves to be a communication string between the consumers and the company, which stands out to be a communication panel connecting the consumers and the company such as the corporate name and logo, primary trademark, secondary trademarks, sub – brand names, global trademark registrations, registered copyrights, packaging designs, trade dress and product names. Whereas, the technical bundle which consists of elements that efficaciously parades the brainpowers of the company that abridges the technological gap that seems to be quintessential for it to blossom brandish in the play field of competitive market players. It includes trade secrets, know how, formulae, packaging technology, key patents, product specifications, product sizes and shapes which are registered as designs or trademarks, proprietary test results, technical designs, drawings and manuals. When the IT Bundle is examined, it can be inferred that it consists various elements that are acquainted with the company's close association with today's digital phase such as operating systems, enterprise solutions, custom applications, data warehouse, data mining, mailing lists, domain names or URLs, third party software tools, certifications and source code.

This grouping approach lays down the solidarity in the foundation of pragmatic valuation of IP Assets. The above listed bundles aren't exhaustive and they are just a list of most generic ones in terms of market practise with regard to the subject matter. This gives an understanding onto the leveraged scope of IP Assets. Moreover, the IP Assets holds its pristine value in terms of concocting itself as a part of an intellectual capital. It is the most crucial part of the venture capital but the problem is that, more often the measurement of such assets is undermined. The paramount writers such as Kaplan and Norton (1996), Stewart (1997), and Kerssens (1999) has envisaged the below quoted phrases - "If you can't measure it, you can't manage it" to justify the search for New Measurement Methods. So, the valuation and measurement of IP Assets seems to be the most critical aspect in terms of company affairs.

The Intellectual Capital (IC) is defined as following "Intellectual Capital can be defined as all nonmonetary and nonphysical resources that are fully or partly controlled by the organization and that contribute to the organization's value creation". More often for a simple definition of the same, Stewart's definition is relied upon, which states as follows, "Intellectual Capital is an intellectual material – knowledge, information, intellectual property, experience that can be put to use to create wealth". So, it can simply be understood as those resources which are acquainted with the intellects utilized for the purpose of wealth maximisation.

Any method that is to be deployed as a measurement instrument of an IP Asset falls in the bracket of any of the following four domain, namely, Direct Intellectual Capital Methods (DICM), Market Capitalization Methods (MCM), Return on Assets Methods (ROA) and Scorecard Methods as quoted by Luthy (1998) and Williams (2000) for the measurement of such intangible assets.

Among those, the most popular ones include the Balanced Scorecard, VAICTM, Skandia's IC Navigator, Intellectual Capital Navigator IC - Index™, The Technology Broker's IC Audit, Sveiby's The Intangible Asset Monitor (IAM). The rear end intent behind postulating such view can be traced back to its concocting hierarchical structure and study of the pragmatic progress in the company aided through the Intellectual Capital (IC). The financial impact is very well traced up to date for effectually implementing further necessary essentials for the prospective progress of the company. The companies can actually

evaluate through the aforementioned popular methods as to which element or indices of the Intellectual Capital (IC) draws plentiful profit to the said company. Choosing the right method as a measurement instrument holds huge importance as such, as it is the medium that induces market field players to come up with produces that ensures an insinuating market impact and moreover, they ground the facet worth of the R&D contracts. Hence, the measuring strategies culminated by a company ensures its firmed feet in the market and thereby even in circumstances where the company is going through liquidation, their face value of Intellectual Assets ensures a promising yield.

13. Findings of the Study

The study on insolvency resolution and IP asset valuation during liquidation reveals several critical findings that underscore the importance of efficient legal frameworks, accurate valuation methods, and international best practices. One of the key findings is the moderate negative correlation ($r = -0.55$) between the time taken for insolvency resolution and recovery rates, suggesting that shorter resolution times lead to higher recovery rates. This highlights the need for streamlined insolvency processes to preserve the value of distressed assets and maximize recoveries for creditors. The study also emphasizes the pervasive issue of undervaluation of Intellectual Property (IP) assets during liquidation. Often, IP assets such as goodwill, trademarks, and copyrights are not given due consideration in the valuation process, leading to significant loss of potential value. Accurate and fair valuation of these assets is crucial for ensuring that creditors receive their due share and for maintaining the overall integrity of the liquidation process.

The research further points to the advantages of adopting international best practices in insolvency resolution. Countries like the US, UK, Singapore and Australia, which have implemented the UNCITRAL Model Law on Cross-Border Insolvency, exhibit better recovery rates and shorter resolution times. These practices facilitate efficient handling of cross-border insolvencies, contributing to a more stable and predictable business environment. In contrast, India, despite having a robust insolvency framework in the form of the Insolvency and Bankruptcy Code (IBC) 2016, has not yet adopted the UNCITRAL Model Law. The study suggests that aligning with international standards by adopting this model law could significantly enhance the efficiency and credibility of India's insolvency resolutions, particularly in handling cross-border cases.

The role of insolvency professionals is another crucial aspect highlighted by the study. These professionals are instrumental in the valuation process, and their expertise directly impacts the outcomes of liquidation processes. There is a pressing need for ongoing education and training in IP asset valuation and insolvency resolution. Specialized courses and certifications can equip insolvency professionals with the necessary skills to conduct accurate valuations and adopt best practices. This professional development is essential for maintaining high standards in the industry and ensuring fair and transparent insolvency proceedings.

The study also calls for legislative amendments and administrative efficiencies to further improve the insolvency resolution process in India. Reducing bureaucratic delays and expediting adjudication processes can significantly shorten resolution times and enhance recovery rates. Implementing technology-driven solutions, such as digital platforms for filing claims and conducting virtual hearings, can also contribute to a more efficient and transparent process.

Finally, the research underscores the importance of focusing on rehabilitation and restructuring over liquidation. Companies should be encouraged to explore these options to maintain their role as key stakeholders in the nation's economic progress. Effective rehabilitation and restructuring can help companies recover and continue contributing to the economy, rather than being forced into closure.

14. Suggestions

The valuation of Intellectual Property (IP) assets during the liquidation process is a critical component that significantly influences the recovery for creditors. To ensure the optimal valuation of IP assets, valuers, insolvency professionals, and policymakers must adopt and implement best practices grounded in empirical evidence and international standards.

14.1. Equal Weightage and Avoiding Undervaluation

Valuers must accord equal weightage to IP assets as to other tangible assets during the liquidation process. Undervaluation of IP assets, such as patents, trademarks, copyrights, and trade secrets, undermines the total recovery value and does not reflect the true worth of a company. To counter this, valuers should be well-versed in diverse measurement methods accepted globally, including the income, market, and cost approaches. These methods should be applied judiciously, considering the unique characteristics of each business environment. For instance, the income approach, which estimates the value based on the future income potential of IP assets, can be highly effective for tech companies with strong innovation pipelines.

14.2. Adopting a Proctoring Mechanism

Insolvency professionals should adopt a robust proctoring mechanism to track the merits and demerits of different IP valuation methods. This involves maintaining detailed records of past valuations, outcomes, and the specific circumstances of

each case. Such a mechanism will help in refining the valuation process and ensuring continuous improvement. The proctoring mechanism should also involve periodic reviews and audits by independent experts to ensure objectivity and reliability.

14.3. Implementing the UNCITRAL Model Law

The Indian government should consider adopting the UNCITRAL Model Law on Cross-Border Insolvency to align with international standards. This model law provides a framework for dealing with cross-border insolvencies in a harmonized manner, thereby facilitating more effective resolution of cases involving multinational corporations. The adoption of this model law would not only improve the efficiency of cross-border insolvency proceedings but also enhance the valuation of Indian companies' IP assets on the global stage. For instance, goodwill, trademarks, and copyrights would be valued more accurately, reflecting their true market potential in international transactions.

14.4. Enhancing Educational Frameworks

The education system in India must be revamped to include credit courses on IP asset valuation and insolvency resolution. These courses should cover theoretical concepts as well as practical applications, ensuring that future professionals are well-equipped to handle complex valuation scenarios. Universities and professional institutes should collaborate with industry experts to design curricula that address the latest trends and challenges in IP valuation. Additionally, continuous professional development programs should be made mandatory for practicing valuers and insolvency professionals to keep them updated with the latest methodologies and regulatory changes.

14.5. Empirical Basis for Valuation Methods

Valuers must rely on empirical data and research before adopting a standard measurement method for IP assets valuation. This involves analyzing market trends, historical data, and case studies to determine the most suitable approach for each scenario. The graph below, illustrating insolvency recovery rates for India, the United States, the United Kingdom, and Singapore from 2019 to 2023, underscores the importance of empirical analysis in understanding the effectiveness of different insolvency frameworks.

Additionally, policymakers should ensure that empirical evidence forms the foundation of any valuation methodology adopted. Empirical studies, such as those tracking the recovery rates over the past five years, provide critical insights into the effectiveness of different valuation practices. The graph showing the insolvency recovery rates from 2019 to 2023, for instance, indicates that countries with rigorous IP asset valuation frameworks tend to have higher recovery rates. This empirical data can guide the development of valuation standards that are both robust and adaptable to changing market conditions.

To better understand the relationship between different insolvency frameworks and recovery rates, a correlation analysis was conducted. The variables considered were the time taken for insolvency resolution and the recovery rate. The analysis revealed a moderate negative correlation ($r = -0.55$), indicating that shorter resolution times tend to correlate with higher recovery rates. This finding aligns with the observation that efficient legal frameworks and quicker resolutions help preserve the value of distressed assets, leading to better recoveries for creditors. This correlation validates the hypothesis that streamlining the resolution process can have a significant positive impact on recovery rates.

To further enhance the valuation process, a standardized approach to measuring the value of IP assets should be developed. This approach should include clear guidelines on the use of different valuation methods, such as the income approach, market approach, and cost approach. Each method has its strengths and weaknesses, and the choice of method should be based on the nature of the IP asset, the industry, and the economic environment. The World Intellectual Property Organization (WIPO) provides extensive resources and guidelines that can be leveraged to develop such standards.

Ensuring the accurate valuation of IP assets during the liquidation process is crucial for maximizing recovery rates and maintaining the integrity of the insolvency framework. By adopting internationally recognized valuation methods, enhancing education and training, implementing robust monitoring mechanisms, and leveraging empirical data, India can significantly improve its IP asset valuation practices. This will not only benefit creditors and investors but also strengthen the overall business environment, fostering economic stability and growth. The adoption of the UNCITRAL Model Law and the continuous refinement of valuation practices will ensure that India remains competitive in the global market, upholding its reputation as a business-friendly environment.

15. Conclusion

In conclusion, addressing the challenges of market competition and corporate viability necessitates a pragmatic approach, emphasizing the critical role of the corporate web in maintaining economic stability. Companies must prioritize rehabilitation or restructuring over closure to uphold their role as key stakeholders in the nation's fiscal progress. The issue of undervaluing IP assets during liquidation, previously elaborated, underscores the importance of accurate and fair valuation by insolvency professionals. These professionals must adopt global best practices in IP asset valuation, selecting the most appropriate methods for specific business environments. Adopting the UNCITRAL Model Law on Cross-Border Insolvency can

align India with international standards, enhancing the credibility and accuracy of IP valuations. Education and training in IP asset valuation and insolvency resolution are essential, with specialized courses ensuring future professionals are well-equipped. A correlation analysis revealed a moderate negative correlation ($r = -0.55$) between shorter resolution times and higher recovery rates, highlighting the need for efficient legal frameworks. Recommendations include legislative amendments, administrative efficiencies, faster adjudication processes, and reducing bureaucratic delays to streamline the resolution process. Technology-driven solutions, such as digital platforms for filing claims and virtual hearings, can expedite proceedings and improve transparency. By focusing on reducing resolution times and enhancing the skills of insolvency professionals, India can achieve higher recovery rates, fostering a more robust and resilient business environment. This holistic approach will ensure that IP assets are valued accurately, contributing to better recovery rates for creditors and strengthening the overall economic fabric.

Ethical considerations

Not applicable.

Conflict of Interest

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